# THE IRON TRADE REVIEW

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## THE WEEK IN IRON CIRCLES.

### THE MARKET AT LARGE.

All negotiations for an early settlement of the steel strike are now off, and the week's developments would indicate that the United States Steel Corporation will have no further dealings with the Amalgamated Association as an organized body. Not only the rank and file, but the officials as well, are beginning to realize that the strike is a lost cause and it is apparent that they would accept almost any terms to bring about a settlement. That the course followed by President Shaffer is not satisfactory to the men was demonstrated at a meeting of the Bay View Lodge when the impeachment of Shaffer was demanded. From Joliet, Ill., it is reported that the tin plate workers affiliated with the Amalgamated Association are in favor of allying themselves with the Tin House Workers' Protective Association. Should this movement be carried into effect it would result in depriving the Amalgamated Association of more than 5,000 tin plate workers now affiliated with that organization. The tube workers of the National Tube Co. affiliated with the Federation of Labor and employed in the plants at McKeesport, Pa., are growing restless and according to reliable reports will return to work within the next two weeks. Owing to the refusal of the Standard Chain Co. and the independent manufacturers of chains throughout the country to sign the new scale presented by the National Chain Makers' Union, a strike was declared this week. About one-third of the chain makers employed by the Standard Chain Co. obeyed the strike order, the plants in the Pittsburg district and Eastern Pennsylvania being most severely affected, while the western plants are operating in full. The men have asked for advances ranging from 10 to 40 per cent. The most important fact in the situation as bearing on the future of the market is one of which brief mention was made in this column last week—the large inquiry for steel rails for delivery next year. Some important roads have already placed considerable orders and others are figuring with the rail mills. The expectation now is that within a short time several hundred thousand tons of rails will be booked for rolling in 1902. It need not be said that such a beginning at this time insures the steel situation until well into next year. There are other indications that the iron market will maintain itself this year and into next in a way that a few months ago was considered scarcely probable. Structural steel is in steady demand and the diminution that was once expected in the fall is not in evidence. The plate situation is rendered strong by well sustained operations at shipyards, those on the lakes particularly having their capacity engaged to the middle of next year. Bar mills have had an unusual business and many have contracts that will occupy them to the end of the year. The pig iron market that was expected to suffer noticeably by the strike has held up steadily and is now in stronger condition than for several months. There is somewhat more contracting for deliveries running into 1902, though most buyers still prefer to keep purchases only 30 to 60 days ahead of their actual melt. The heavy malleable purchases at the end of July will take care of that interest, in the Central West at least, for some months. In the past week there has been an increase of foundry buying and a number of 1,000 ton contracts are noted in the West and Central West, one Cleveland foundry taking upwards of 4,000 tons. Prices are not higher, but there are probably fewer weak spots, and the condition of the foundries, barring the Chicago strike, is quite satisfactory. There has been good buying of basic iron by Central Western steel works in the week and in turn considerable sales of steel, both Bessemer and open-hearth. Some billet contracts have been made, running into next year. Agreed mill prices are $24 for 4x4 inch billets, $25 for slabs, $26 for sheet bars and $27 for small billets, but advances are being secured, 4x4 billets selling in some instances at $25, Pittsburg.

### PITTSBURG.

OFFICE OF *The Iron Trade Review*, 429 PARK BUILDING, Sept. 4.

Strike developments during the past week have all favored the United States Steel Corporation and substantial gains have been made in the operation of idle plants. The Star Tin Plate plant, located in this city, is operating at about half its capacity and there is every indication that the plant will soon be operating in full. At McKeesport, Pa. it is reported that an effort will be made to place the Demmler tin plate plant in operation before the end of the week, the majority of the Amalgamated Association employes of the plant having signified intentions of returning to work as soon as operations are resumed. The Seamless tube plant of the National Tube Co. at Christy Park, is operating in part and the return of the employes of the mills of the National Tube Co. is now only a matter of a few days. Efforts to tie up the Duquesne plant of the Carnegie Steel Co. have failed, and the plant is operating in full, although a number of helpers have quit during the week.

At the present writing there are no peace negotiations on, and despite the statements of labor leaders throughout the country that the Amalgamated Association is carrying on a lost fight, President Shaffer continues to prolong the struggle, evidently not realizing that the ultimate effect will be to remove Amalgamated Association domination entirely out of the mills of the United States Steel Corporation.

Commencing this week the association will be compelled to pay strike benefits, and it is doubtful whether the fund now on hand will pay benefits during the next three weeks. While the association is already defeated it is generally conceded that the strike may hang on until October 1, when it is expected a majority of the idle mills will be in operation.

The strike order of the National Chain Workers' Union went into effect yesterday. None of the chain plants in this district have been entirely tied up as the result of the strike. The officials of the Standard Chain Co. report that less than 200 of their 700 chain makers obeyed the general strike order. The independent plants, however, were not favored as well as the chain combine, and in the mills where the chain makers have lodges less than half appeared for work. The McKay plant was shut down entirely, the management concluding that this would be an opportune time to remove their machinery to their new plant at McKees Rocks. The men have

been notified that if they desire to return to work in the new plant under the old scale they will be at liberty to do so, but under no conditions will the newly formulated scale be paid. The chain makers failed to form an organization among the employes of Jones & Laughlins' chain department and as a result the plant is operating in full. The new scale was presented to the manufacturers on Aug. 20, and provides for advances for different sizes ranging from 10 to 40 per cent. Officials of the Standard Chain Co. have advised their men that they will not pay the new scale nor will they recognize the union, and have warned them that if they fail to return to work their places will be filled by others.

The iron and steel market continues strong in all lines except Bessemer iron. As yet the United States Steel Corporation has not made inquiry for Bessemer for delivery during the remainder of this month and it is doubtful whether any iron will be purchased. Quotations, therefore, remain merely nominal. There has been a good demand for foundry iron and furnaces report that the business for future delivery is very satisfactory.

Products affected by the strike, of course, continue firm, and premiums continue to be paid for all such material for immediate delivery. Manufacturers of steel bars report that agricultural implement manufacturers are beginning to specify on material, contracted for earlier in the summer, and are anticipating their wants until the first of the year. Structural material continues very firm and deliveries on a large order of assorted sizes cannot be made before the first of the year.

PIG IRON.—Demand for foundry iron continues good and furnaces report that business for the remainder of the year, already booked, is very satisfactory. Sales during the week will aggregate about 8,000 tons. One order placed called for 5,000 tons of No. 2, for delivery at Cleveland, O. Sales are being made at $14.25, Pittsburg. The sale of 7,000 tons of basic iron for delivery the remainder of the year is also reported at $15.25, Pittsburg. We also note the sale of 2,500 tons of forge at $13.75, Pittsburg. The failure of the United States Steel Corporation to purchase Bessemer iron for delivery during the month of September has evidently not weakened the Bssemer market. While no sales have been made during the week, furnacemen are holding firmly to $15 to $15.25 at the furnace or $15.75 to $16, Pittsburg. We revise quotations as follows:

| | |
|---|---|
| Bessemer, Valley | $15 00 to 15 25 |
| Bessemer, Pittsburg | 15 75 to 16 00 |
| No. 1 Foundry | 14 75 to 15 00 |
| No. 2 Foundry | 14 00 to 14 25 |
| No. 3 Foundry | 13 50 to 13 75 |
| Gray Forge, Pittsburg | 13 60 to 13 75 |
| Chilled Basic, Valley | 14 50 |
| Chilled Basic, Pittsburgh | 15 25 |

STEEL.—It is practically impossible to secure Bessemer billets for prompt shipment or for delivery within the next 30 days. Consumers are freely offering $25 per ton for billets for prompt delivery. Open-hearth billets are not in such good demand and sales have been made during the week at $25.50 to $26 per ton. We note one sale of billets of 1,500 tons at $26 per ton. This lot is to be delivered during the next 30 days, however. The demand for wire rods is only fair and sales have been reported at $34 to $35 per ton.

FERRO-MANGANESE.—Sales of several carload lots of domestic manganese, 80 per cent, are reported at $55 per ton. Foreign manganese, 80 per cent is selling at $53.50 per ton.

SPELTER.—There has been no change in the spelter market during the week and sales continue to be made at 3.95c, Pittsburg, for prime Western grades.

MUCK BAR.—We note the sale of 500 tons of muck iron at $31 per ton for delivery within the next 30 days.

SKELP.—While premiums are being paid for skelp for prompt shipment, the price of this product for future delivery has advanced somewhat since the mills of the National Tube Co. were closed. Iron skelp, both grooved and sheared, for future delivery is being sold at 2c, one sale of 1,500 tons having been made at this price last week. Steel skelp is quoted at 1.87½ to 1.90c. For immediate delivery, iron skelp is held at 2.05c to 2.15c, while steel skelp is held at 2c to 2.05c.

RAILS AND TRACK MATERIAL.—Inquiries for rails for shipment next year are being received by the rail manufacturers from the largest roads in the country. The indications are that the contracting for rails will be much earlier this year than ever before. While the price has not been definitely fixed there is every indication that it will remain at $28 per ton as at present. We make the following quotations: Standard sections, 50 pounds and over, in lots of 200 tons and over, $28; car lots and less than 200 tons, $30; less than car lots, $32; light rails, 8 pounds, $45; 12 pounds, $38; 16 pounds, $35; 20 pounds, $34; 25 to 40 pounds, $32. Track material: Spikes, 1.95c to 2c; track bolts, square heads, 2.40c; hexagon heads, 2.55c; fish plates, 1.50c to 1.60c.

PLATES.—The plate situation is growing more satisfactory daily and all the mills in this district have orders on hand for the next six weeks. Prices remain unchanged as follows: Tank plate, ¼-inch thick up to 100 inches in width, 1.60c at mill, Pittsburg; flange and boiler steel, 1.70c; marine, ordinary firebox, A. M. B. A. specifications, 1.80c; still bottom steel, 1.80c; locomotive firebox, not less than 2.10c; and it ranges in price to 3c. Plates more than 100 inches wide, 5 cents extra 100 pounds. Plates 3-16 of an inch in thickness, $2 extra; gauges Nos. 7 and 8, $3 extra; No. 9, $5 extra. These quotations are based on carload lots, with 5 cents extra a hundred pounds for less than carload lots. Terms, net cash in 30 days.

BARS.—The steel bar market continues firm and manufacturers report that specifications are now being received from agricultural implement manufacturers on orders placed during the months of July and August. On carload lots 1.50c is quoted, while on smaller lots 1.60c to 1.65c is the ruling quotation. Common iron bars are quoted at 1.50c, while refined bars are held at 1.75c.

PIPES AND TUBES.—There has been no change in the general situation and all kinds of merchant pipe, tubing and casing continues scarce owing to the idleness of the mills of the National Tube Co. Operations at the Seamless Tube Plant of the National Tube Co. at Christy Park were commenced this week and it is probable that the McKeesport plants will be in operation within the next ten days. Jobbers and independent manufacturers continue to quote prices from 25 to 35 per cent higher than the prices quoted below by the National Tube Co. on business for future delivery. Discounts to consumers, carload lots, Pittsburg, are as follows:

MERCHANT PIPE.

| | In carloads. Blk. | In carloads. Galvd. | Less than carloads. Blk. | Less than carloads. Galvd. |
|---|---|---|---|---|
| ⅛ to ⅜ inch and 11 to 12 inches | 59.2 | 46.2 | 54.9 | 40.5 |
| ½ to 10 inches | 66.7 | 53.3 | 61.9 | 49.9 |

BOILER TUBES.

| | 22 Feet and under. Per cent. Iron. | Steel. |
|---|---|---|
| 1 to 1¾ and 2¼ to 5 inches, inclusive | 43½ | 65¾ |
| 2 to 2¼ inches, inclusive | 43 | 60 |
| 6 inches and larger | 53 | 59 |

CASING.

| | S. and S. Per cent. |
|---|---|
| 2 to 3 inches | 58 |
| 3¼ to 4 inches | 63 |
| 4¼ to 12¾ inches | 65 |

O. D. PIPE.

| | Per cent. |
|---|---|
| 14 to 22 inches | 42 |
| 4 inches, o. d. and larger | 37 |

THREADS AND COUPLINGS.

| | Per cent |
|---|---|
| 14 to 16 inches o. d. | 35 |

SHEETS.—The American Sheet Steel Co. this week notified its regular customers that it will be able to provide a large portion of their tonnage requirements during the next two months and orders are now being placed accordingly. The sheet combination is in better condition at present than at any time since the strike started to supply the trade and there is every indication that the output will increase weekly from now on. Business is being taken by the American Sheet Steel Co. on a basis of 3.10c for No. 28 gauge, despite the fact that independent manufacturers are quoting 3.35c for this same material for future delivery. Black sheets from jobbers' stocks are quoted at 4c for No. 28 gauge and 3.75c for No. 27 gauge. Galvanized sheets for prompt delivery are quoted at 65 off while for future delivery 70 and 5 off is the ruling quotation.

STRUCTURAL MATERIAL.—A great scarcity of light angles is reported and on new business mills will be unable to make deliveries in less than four months. On large contracts calling for assorted lots none of the mills can promise deliveries before Jan. 1. Despite the scarcity of material prices remain unchanged as follows: Beams and channels, 3 to 15 inches,

1.60c; 18 to 24 inches, 1.70c; tees, 1.65c; zees, 1.60c; angles, from 3 to 6 inches, 1.60c; universal mill plates, 1.60c.

WIRE AND WIRE NAILS.—A big fall demand has set in for wire and wire nails and the market which was disposed to be weak some time ago is ruling exceedingly strong. Cut nails are also ruling strong and in good demand. Prices remain unchanged as follows: Single carloads of wire nails to jobbers, $2.30, Pittsburg, to retailers, $2.40; plain wire, carload lots, is quoted at $2.25 to jobbers and $2.35 to retailers; painted barb wire, $2.60 in carload lots to jobbers, and $2.70 to retailers; galvanized barb wire, $2 in carload lots to jobbers, and $3 to retailers. Cut nails are quoted at $2, Pittsburg, in carload lots, 2 per cent off in 10 days.

MERCHANT STEEL.—Concessions are now being made by all the shafting manufacturers to the trade and discounts as low as 60 off have been reported on round lot orders. The agreement of the shafting manufacturers has been broken and is no longer in existence. We make the following quotations: Turned, cold rolled and ground shafting at 60 per cent off for car lots and 55 per cent off for less than car lots; tire steel in carload lots and over, 1.60c, less than carload lots, 1.75c to 1.80c. Toe calk is held at 1.70c in large lots, and in small lots as high as 1.85c. Tool steel is held at 7c and upwards, according to quality.

OLD MATERIAL.—Heavy buying of melting stock on the part of the Crucible Steel Co. of America is reported. The Republic Iron & Steel Co. also continues as a large buyer of second-hand material. Our quotations, gross tons, are as follows: Heavy melting stock, $15 to $15.50; low phosphorus melting stock, $16.50 to $17.50; steel rails, $15.50 to $16; bushcling scrap, $13 to $14; No. 1 wrought, $16 to $17; iron rails, $18 to $19; cast borings, $6.50 to $7; cast scrap, $13.50 to $14.

COKE.—The curtailment of the production of Connellsville coke on account of the strike has not been as great as was anticipated it would be during the earlier stages of the struggle. For the week ending Saturday, Aug. 24, the total production was estimated at 219,824 tons, a gain of nearly 10,000 tons over the production of the previous week. Connellsville furnace coke is quoted at 1.75 to $2 per ton while foundry is quoted at $2.15 to $2.40 per ton. Outside coke producers are offering furnace coke at $1.40 to $1.65 per ton, while foundry is held at $1.90 to $2.

## CHICAGO.

OFFICE OF *The Iron Trade Review*,
934 MONADNOCK BLOCK, Sept. 3.

The situation in this district remains practically unchanged. The consumption of iron in all finished lines shows no signs of abatement, and warehouse stocks of sheets, bars, structural steel, tubing and plates are almost exhausted. In some sizes, it is impossible to get material, and both jobbers and consumers are becoming somewhat uneasy over the prolongation of the strike. All the local concerns state the month just closed was one of the best in the history of their respective companies, the manufacturers of bars and wire products, especially, being simply crowded with orders. The strikes will continue at the Joilet and Bay View plants of the Federal Steel Co., but reports from those cities indicate that the men are dissatisfied with their leaders and an early resumption of work at the mills is predicted. The molders' strike in this city is rapidly approaching an end, and the demand for pig iron is improving correspondingly. Small numbers of strikers are returning to work daily, and it is now but a matter of a short time before all the foundries will be running with a full complement of men. Commission merchants report that several large orders for northern, southern and malleable irons have been closed during the past week, and that the inquiry for smaller lots is exceptionally good. Some contracts have also been closed for delivery of iron extending into the first half of next year.

PIG IRON.—Desertions from the ranks of the striking molders are reported almost daily, and local foundrymen are already beginning to figure up their needs in iron for the remaining months of the year. Few large contracts have been placed thus far, but the inquiries indicate that consumers consider the backbone of the strike as broken and are willing now to figure on the orders that should have been placed in June and July. The present low prices have also acted as a further inducement, and all the commission merchants are hopeful that the buying in the next few weeks will favorably compare with the figures prior to the strike. Orders for carload lots still predominate, and some contracts for 1,000-ton lots have also been placed. There is no noteworthy demand for any particular grade of iron, the business being about evenly divided among all classes. Prices, though unchanged, are much firmer.

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|---|---|---|---|
| Lake Sup. Charcoal | $17 50 to $18 00 | Southern Coke No. 4 | $13 90 to $14 15 |
| Local Coke Fdy. No. 1 | 15 50 to 16 00 | Southern No. 1 Soft | 15 40 to 15 55 |
| Local Coke Fdy. No. 2 | 15 00 to 15 50 | Southern No. 2 Soft | 14 90 to 15 15 |
| Local Coke Fdy. No. 3 | 14 50 to 15 00 | Southern Silveries | 15 45 to 15 50 |
| Local Scotch Fdy. No. 1 | 15 50 to 16 00 | Jackson Co. Silveries | 17 00 to 17 50 |
| Local Scotch Fdy. No. 2 | 15 00 to 15 50 | Ohio Strong Softeners | 16 50 to 17 00 |
| Local Scotch Fdy. No. 3 | 14 50 to 15 00 | Alabama Car Wheel | 21 00 to 22 00 |
| Southern Coke No. 1 | 14 65 to 15 15 | Malleable Bessemer | 16 00 to 17 00 |
| Southern Coke No. 2 | 14 15 to 14 65 | Coke Bessemer | 17 50 to 18 50 |
| Southern Coke No. 3 | 14 15 to 14 65 | | |

BARS.—With the prolongation of the strike and the depletion of stocks in warehouses, it is becoming more and more difficult to get prompt shipment of material. The local manufacturers are compelled to discriminate with orders of this kind, and in many cases, almost prohibitory prices are asked. As a consequence, a great many orders are being placed, with the simple agreement that delivery be made as quickly as circumstances will permit. That some large consumers do not care to be caught again in this fashion is indicated by the increasing number of contracts that are being closed for long time delivery. Most of the business, however, is in small lots, from 50 to 150 tons. We quote steel bars for immediate shipment, 1.70c Chicago, and iron, 1.65c Chicago. Out of store, steel, 1.90c; iron, 2c; on long time contracts, steel 1.55c; iron, 1.60c.

SHEETS.—There is no change in the situation. The demand continues as great as before, and it is but a matter of a short time before the entire stock in this city will be exhausted. We quote No. 27 black, 4.10c to 4.25c, and galvanized 60 per cent and 5 per cent from store.

STRUCTURAL STEEL.—Business in small lots is up to the average of past weeks, but building in this locality is hampered by the inability of mills to make desired shipments. As a result, there has been an extraordinary demand for material out of Chicago stock, and prices have gone flying upward. Jobbers are asking prices, 50 cents, 75 cents and one dollar higher than mill quotations, Chicago delivery. We quote mill shipments, carload lots, as follows: Beams, 15 inches and under, 1.75c; 18 inches and over, 1.85c; angles, 1.75c to 1.80c; plates, 1.75c, base; tees, 1.80c; zees, 1.75c; small lots from store, ¼c higher; beams and channels from store, ½c to ¾c per pound higher.

RAILS.—Some few sales of small lots are reported, consumers agreeing to take such deliveries as mills can make. The demand for light rails and track supplies is very good, manufacturers reporting that could satisfactory deliveries be made, an exceedingly large tonnage could be booked. The shutting down of two of the Western plants of the United States Steel Corporation, at both of which merchant iron for working into spikes and other track supplies, was made, has still further delayed the shipment of orders for this material. All the mills report they are 60 to 90 days behind in deliveries. Our quotations follow: Standard rails, $28; light sections, $33 to $35, according to size; out of store, $40 to $44; splice bars, 1.60c to 1.70c; spikes, 1.90c to 2c; out of store; 2c; track bolts, hexagon nuts, 2.80c to 2.90c; out of store, 2.90c to 3c; square nuts, 2.65c to 2.75c; out of store, 2.75c to 2.85c.

PLATES.—There is no diminution in the demand, and mills continue behind in shipments. On this account, much business is being turned into jobbers' channels, who are asking prices varying according to the size of order and shipment desired. Our quotations follow: Tank steel, base, ¼ inch, 1.75c; flange steel, 1.90c to 2c; marine steel, 1.95c; firebox steel, ordinary, 2c to 2.10c; special, 2.25c and upwards. Tank steel from store, 2c to 2.20c; flange steel from store, 2.25c.

MERCHANT STEEL.—Continued contracts from the implement manufacturing trade are reported, together with a good run of orders from jobbers and other sources. Most of this business comes from small concerns in agricultural towns, who prefer to order material as they need it to making long time contracts. A small amount of business is done each week in cold rolled steel shafting, but the various strikes have greatly affected this market in this material. Our quotations follow: For mill shipments, Chicago delivery, smooth finished tire steel, 1.90c to 2c; open-hearth spring steel, 2.50c to 2.75c; toe

calk, 2.40c to 2.60c; sleigh shoe, 1.85c to 1.90c; cutter shoe, 2.40c to 2.60c; ordinary tool steel, 6c to 7c; specials, 13c and upwards. Cold rolled shafting, carload lots, 55 per cent and upwards.

MERCHANT PIPE.—The sudden demand for this material which came to the front two weeks ago caught many manufacturers and jobbers out of stock on various sizes. The demand continues, though many orders will have to remain unfulfilled until the strike is over. Prices fluctuate according to the needs of the consumer. We quote manufacturers' prices random lengths, as follows:

| | Black Per cent. | Galv. Per cent |
|---|---|---|
| ⅛ to ¾ and 11 to 12 in. | 52 | 37 ½ |
| ¼ to 10 inches | 60 | 46 |

WIRE AND WIRE NAILS.—Orders pour into the local interest in as great volume as heretofore, and the capacity of its mills will be taxed to the utmost to fill the same. Particularly is this true of wire nails, the immense stock which it had on hand early in the year being almost exhausted. Prices are very firm, and in St. Louis, where jobbers have been selling close to cost, prices have gone up. This manufacturer states that the month just closed was one of the best in the history of the company. Our quotations follow: Carloads of wire nails to jobbers, $2.40, Chicago; to retailers, $2.50; plain wire, carload lots to jobbers, $2.35, to retailers, $2.45; painted barb wire to jobbers, carloads, $2.70, to retailers, $2.80; galvanized barb wire, carloads to jobbers, $3, to retailers, $3.10.

OLD MATERIAL.—With the disintegration of the molders' strike in this city, comes a better demand for cast scrap iron. There is also a good market for busheling scrap, turnings and borings. Prices are very firm. We quote dealers' prices, per gross ton, as follows:

| | | | |
|---|---|---|---|
| Old iron rails | $20 00 to $20 50 | Old Wheels | $16 00 to $16 50 |
| Old steel rails, long | 16 00 to 16 50 | Heavy melting steel | 13 00 to 13 50 |
| Old steel rails, mixed | 13 50 to 14 00 | Mixed country steel | 10 00 to 10 50 |
| Relaying rails | 20 00 to 22 00 | | |

The following are selling prices per net ton:

| | | | |
|---|---|---|---|
| No. 1 R. R. wrought | $14 50 to $15 00 | Iron axles | $20 00 to $20 50 |
| No. 2 R. R. wrought | 13 00 to 13 50 | Cast borings | 4 00 to 4 50 |
| Dealers' forge | 12 50 to 13 00 | Wrought turnings | 9 50 to 10 00 |
| No. 1 busheling | 10 50 to 11 00 | Iron axle turnings | 11 00 to 11 50 |
| Heavy cast | 11 00 to 11 50 | Steel axle turnings | 9 50 to 10 00 |
| Railway malleable | 12 00 to 12 50 | Stove plates | 7 50 to 8 00 |
| Country malleable | 10 50 to 11 00 | Old iron splice bars | 16 00 to 16 50 |

## CLEVELAND.

OFFICE OF *The Iron Trade Review*,
1064 ROSE BUILDING, Sept. 4.

The report, showing the shipment of iron ore from the upper lake region to the receiving ports of Lake Erie, has not been compiled for the month of August. Notwithstanding the fact that this data is not at hand there is a strong impression abroad that the total receipts for the year still show a shortage as compared with last year's figures compiled on the 1st of September. This is little more than was to be expected, for to entirely wipe out the shortage the shippers would have had to duplicate the extraordinary movement of July and add to that about 50,000 tons of ore. The inability of the dock facilities along the lake to handle all of the ore which the boats brought down, and the annoying shortage of cars, for direct movement from the lakes to the furnace stock piles, prevented the shippers from making the record they aimed at making. As a natural result the shippers must continue through the month of September at least to bid freely for wild tonnage, being deprived of the sought-for relief through the incapacity of the docks. It is now to be the aim of the shippers to move as much wild ore as possible before the other trades on the lakes begin to bid heavily for wild tonnage, this movement among the ore shippers being their means of escaping, if possible, the usual rapid advances of wild lake rates during the fall season. At present shippers are bidding freely for tonnage and are paying without question or quibble the rates which have prevailed all summer, 80c from Duluth; 70c from Marquette; and 60c from Escanaba. The latter port is already compelled to divide tonnage with Chicago grain shippers.

PIG IRON.—Buyers of the foundry grades are still taking material in a hand-to-mouth manner and are requesting deliveries on as short time as possible. The furnaces have no material in stock and are not producing up to the requirements of the trade, consequently are being pushed to make deliveries as soon as requested. While the buying is only to cover immediate needs the aggregate business is satisfactory. A few sales in large lots are being made, but for the most part the consumers, for some unexplained reason, are refusing to make contracts ahead, until something more definite is known of the outcome of the strike of the Amalgamated Association. This week a sale of 4,100 tons of No. 2 foundry was reported. It is understood that this goes to a local concern making electrical appliances and that a part of it was taken by local furnaces. The foundry grades are still quoted at $14 to $14.25, in the Valley, for No. 1, and $13.50 to $13.75, in the Valley, for No. 2. Bessemer iron is not much in demand at this time and no big business is expected until the mills of the United States Steel Corporation have resumed operations. The members of the Bessemer Association are understood to be halting between closing some of the furnaces and piling the iron, with the belief current that they will resort to the latter, being assured that when the mills have resumed operations there will be a need for the material. A nominal quotation of $15.25 for Bessemer is still heard. After the moderate sales of a week ago of basic the market quieted down and aside from a few inquiries for material, but little is heard. The sales, however, fixed the price at $15 at the furnace.

FINISHED MATERIAL.—Following the moderate sales of steel rails reported last week, for delivery after the 1st of January, some of the larger lines came into the market and purchased considerable quantities of rails to meet their prospective requirements. Enough rails have now been sold to assure that the price will hardly vary next year from the present basis of $28. The early buying is probably due to the fact that sales have been made for this year's delivery in such quantities that the mills will be unable to meet all of the demands. The demand for light rails is extraordinarily heavy and the supply is limited, due to the closing of the mills of the Illinois Steel Co. and of the American Steel Hoop Co. The result has been that the railroads needing light rails are seeking the brokers and are asking immediate deliveries out of stock. There is no quotation of light rails possible because the urgency of the need of the buyer decides the price now. The Everett-Moore syndicate was in the market this week and purchased 1,500 tons of rails, for electric lines, which are to be used on a line in northern Ohio. Billets are holding up strong and the demand for the material is in reality in excess of the supply. The buyers are offering a premium and most sales are being made at $25. Sheet bars are also showing up strong, but the better supply of that material prevents a premium being paid. The price holds at the association figure, therefore, $25. The demand for structural material also holds up this week as some of the producers have had reason to be surprised at the heavy orders coming in so late in the year. The purchasers are not encouraged in their requests for material, because structural shapes are scarce. Ship plate is also strong. This week material for another ship was sold to the American Ship Building Co. Plates and shapes are holding at 1.70c strong.

The demand for sheets still holds up with the only possible supply coming from the stock piles. The quotations remain as follows: No. 28, at 3.95c; No. 27, at 3.85c; No. 16 blue annealed at 2.90c, and No. 12 at 2.60c out of stock. Bars are also in good demand with the supply limited. The prices have not changed from 1.52½ on bar iron at the mills and 1.50c on steel bars, also at the mills. Quotations on bars out of stock hold at from 1.72½ to 1.75c.

OLD MATERIAL.—The scrap trade has not changed much in the last week other than to denote some improvement in the demand for material. The market is quite active along general lines, no one article seeming to have been made a specialty of. The prices hold firm as formerly quoted, as follows: Old iron rails, $19 to $20; old steel rails, $15 to $15.50; old car wheels, $16; mill scrap, $14 to $15; No. 1 machine cast scrap, $13.50 to $14; iron axles, $22; wrought turnings, $12 to $12.50; cast borings, $6.50 to $7; stove plate, $10 to $10.25.

## CINCINNATI.

Sept. 3.

An increased demand on the part of consumers for pig iron and scarcity of some finished material, resulting in delay in fill-

ing orders placed by manufacturers, are the features of the iron market in Cincinnati. Several conditions contribute to cause the increased demand noticed. In the first place the settlement of the differences between the foundrymen and the molders has put a feeling of confidence in all lines of the trade that would have been immediately effected by a strike in this branch. The molders demanded a 25-cent advance in their day's wages and received a compromise. The bench molders were getting $2.50, wanted $2.75, and a compromise was effected on $2.65. Floor molders were getting $2.75, wanted $3, and compromised at $2.85. The result of this avoidance of trouble has had an immediate effect and foundrymen have bought more liberally. One concern placed an order for 3,000 tons to be delivered in monthly instalments during the first half of the year 1902.

An increased demand for castings and finished material on the part of the machine tool manufacturers has been noticed. These lines have been working full and over time to catch up where they got behind on account of the machinists' strike, and they have been in the market quite largely during the past week. These conditions have united to cause a firm market and a feeling among all branches of the trade that a satisfactory fall business will be met with.

PIG IRON.—There have been some large orders given for pig iron during the past week, but it is noticeable that the greater number of orders are for small lots and for immediate delivery. These two facts are taken by the pig iron men to mean that most consumers are short of supplies and that many of them have come to the conclusion that the market will be sustained and that they might as well buy for some time ahead as wait any longer. There have been sales of 1,500, 1,000 and several 500-ton lots, in addition to the larger order for 3,000 tons to be delivered during the first six months of 1902 noted above. There has been no change in prices in spite of the fact that some furnaces are sold up for a few months ahead and, as is claimed, most of them show full bookings. Those that are bullish on pig iron point to the fact that stocks are low and that the production does not have a chance to get ahead of consumption. On the other hand there are a good many concerns that are awaiting the outcome of the steel strike even if not directly drawn into it, and on them will depend somewhat the trend of the market. The demand is largely for foundry grades, and Southern irons are having a fair movement.

Following are ruling quotations:

| | | | | | |
|---|---|---|---|---|---|
| Southern Fdy. No. 1 | $13 50 | to $14 00 | Northern Fdy. No. 1 | $14 85 | to $15 35 |
| " " 2 | 13 00 | to 13 25 | " " 2 | 14 35 | to 14 60 |
| " " 3 | 12 50 | to 12 75 | Charcoal C. W. iron | 18 50 | to 18 75 |
| " " 4 | 12 00 | to 12 25 | Malleable coke iron | 15 00 | to 15 25 |
| So. Fdy. No 1 soft | 13 50 | to 13 75 | Gray Forge mottled | 12 00 | to 12 25 |
| So Fdy. No. 2 soft | 13 00 | to 13 25 | | | |

FINISHED MATERIAL.—There has been a good demand for finished material during the past week. Some of the iron store men report that they have been cleaned out of entire stock of some kinds and the feature about the market is perhaps the inability to get sheets at anything near the market price. Orders for sheets at the market price can be filled only on considerable time, and prices asked for immediate delivery are much beyond the regular rates. A good many lines of manufacturers have bought well during the week and are complaining at slow delivery or at higher prices if they ask for immediate delivery. Following are quoted prices: Iron bars, 1.65c base; steel bars, 1.60c to 1.65c base; angles, 1.70c to 1.75c base; plates, 1.85c to 1.90c base; sheets, No. 28, 3.35c to 3.40c; sheets, No. 12, blue annealed, 2.05c to 2.10c. It is claimed by the dealers that these prices would not get the material in some cases, especially in sheets, some of them giving as a fair quotation for quick delivery of No. 28 sheets, 3.92c, and on No. 12 blue annealed, as high as 2.50c to 2.60c.

OLD MATERIAL.—The market for scrap has been firm, though there are no appreciable changes in prices from last week. The inquiry for old iron rails has been better, with slightly high figures quoted. Cast borings are scarce yet there is small demand for that class of goods. The scrap men report that they are reasonably busy. Quotations are as follows:

| | | | | | |
|---|---|---|---|---|---|
| Old No. 1 wr'ght R.R. | $14 00 | to $14 50 | Old iron axles | $19 00 | to $20 00 |
| Cast mac & fy. scrap | 12 00 | to 12 25 | Old iron car wheels | 16 50 | to 16 75 |
| Old iron rails | 17 50 | to 17 75 | Stove plates | 10 00 | to 10 25 |
| Old steel rails | 14 50 | to 14 75 | Wrought turnings | 11 25 | to 11 50 |
| Old short lengths | 13 75 | to 14 00 | Cast borings, net tons | | 7 00 |

## PHILADELPHIA.

Sept. 3.

There is every indication that the volume of finished materials affected by the strike will soon be larger and that prices will be readjusted to meet new conditions. While the strike has not been declared off officially, and may not be for some time to come, it has ceased to be a controlling factor, and the end is already being discounted by both manufacturers and consumers. It is true that it will require considerable time to bring stocks of sheets, tin plates, wrought iron pipe, etc., as well as certain forms of structural material, up to their former level, and lower prices may not be made in these lines immediately, neither are any further advances to be looked for.

PIG IRON.—The fear that business will fall off toward the end of the year is causing some sellers to make slight concessions on business which will carry them through the winter. Stocks at the present time are light and considerable iron will be needed to meet requirements of the next few months. Buyers as a rule are only taking enough to fill their immediate wants, and the market may be said to slightly favor them in its irregularity. Prices range about as follows for Philadelphia and vicinity: No. 1 X foundry, $15.50 to $16; No. 2 X foundry, $14.85 to $15.25; No. 2 plain, $14.25 to $14.75; standard gray forge, $13.75 to $14; ordinary gray forge, $13.25 to $13.50; basic (chilled), $14 to $14.25.

FINISHED MATERIAL.—During the week bars have been advanced a dollar a ton and are now quoted at 1.62c for carload lots and 1.70c for smaller quantities. Plates are steady with no changes in prices to be noted, although the demand is more than equal to the present rate of production. Some forms of structural material are scarce and bringing a premium, differing with the quantity required and time of delivery. No prices can be quoted on sheets as the mills are all oversold and in no position to accept business. The outlook is very promising for some time to come. We quote as follows for seaboard and near by deliveries: Plates, ¼-inch and thicker, 1.75c to 1.80c; bars, iron or steel, 1.62½c to 1.70c; angles, 1.75c to 1.85c; beams and channels, 1.75c to 1.80c.

## Steel Workers Dissatisfied.

(Special Telegram.)

PITTSBURG, Sept. 4, 1901.—Dissatisfaction with the policy of President Shaffer's conduct of the steel strike has resulted in a movement on the part of the tin plate workers to break away from the Amalgamated Association. Several lodges at Joliet, Ill., have voted in favor of affiliating themselves with the tin house workers' association and letters have been sent to the other lodges throughout the country requesting them to take action on this proposition.

Should the tin plate workers break away from the Amalgamated Association it would mean a loss in membership of more than 5,000. This would be a severe blow to the organization and one that would prove almost fatal at this time. The tin house workers have an organization with a membership of about 3,500 and with the tin plate workers as members a strong organization could be formed. At the Welsh tin plate plants the tin plate workers have an organization of their own and this project has been repeatedly suggested among the workers in the American plants.

Sheriff McKinley, of Allegheny county, has been asked to furnish deputies to protect the workmen who will enter the Demmler tin plate plant at McKeesport, Pa., before the end of the week. It is probable that 50 men will be sworn in to protect the plant and the men who are desirous of returning to work.

The Circuit Court at Cincinnati, O., has granted a temporary restraining order on the plea of the officials of the American Tin Plate Co. that the strikers at its Irondale (Ohio) plant are interfering with non-union men who are endeavoring to secure work. On Sept. 10 the court will take testimony for the purpose of deciding whether the restraining order shall be made permanent.

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The American Bicycle Co. has completed arrangements for the removal of the general headquarters of the automobile department to Toledo, O. Mr. A. E. Schaff, general manager of that department, is at present in that city and will have a force of 30 clerks. The number of men engaged in this branch of the American Bicycle Co. is now 700, turning out 30 automobiles weekly, and this force is to be increased to a capacity of 12 machines daily.

# THE IRON TRADE REVIEW

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## RECIPROCITY A PRESSING ISSUE.

It is plain that a strong effort will be made at the next session of Congress to reverse the action of the Senate of the last Congress on reciprocity treaties. Particularly will the French treaty come up for new consideration; and it can be said on high authority that President McKinley's message in December will be more pronounced than any utterance that has yet come from him, in favor of the modification of our tariff by means of special treaties. Next to the questions that our detached possessions have pressed upon the President and his advisors nothing has had more or more earnest consideration from the administration in the past few months than American trade interests abroad, and the best methods of extending them.

The President has been charged with inconsistency, and with shifting from the pronounced Protection position which is chiefly responsible for his political advancement, to a position which puts him in a measure in accord with those whose tariff policy he has always opposed. The answer seems to be in effect that new conditions in trade teach new duties and suggest new methods, and that the protective policy itself may well be modified in the face of new developments, just as the schedules are subject to revision from time to time as industrial and economic changes warrant.

We have not shared the belief of many that our protective tariff is responsible for the agitation in Europe of an anti-American trade combination. Great Britain and the Continental powers know that in the case of many of our leading products the tariff is not the thing that now prevents their entrance to the markets of the United States. If we were told that there was strong foreign hostility to our protective tariff because it had built up vigorous industries that under strenuous competition at home had learned to turn out exceptionally good products at steadily lowering costs, we might appreciate the logic of the position. We are persuaded, however, that the European agitation against the extension of our export trade is not due to what has been achieved in the upbuilding of our industries by the help of our tariff, but to the fact that our manufacturers have essayed to enter Europe and to become competitors in other markets in which European manufacturers had not been seriously disturbed by American competition until very recent years.

There is little sentiment in trade between nations. The fact that her ports are open to our products, while we impose a tariff on practically all that comes from her shops and factories has not prevented Great Britain from buying in this market and steadily increasing her bills for American commodities. Hon. O. P. Austin, chief of the Treasury Bureau of Statistics, practically illustrates the point in a recent article in which he refers to the protests against the Dingley bill sent to Congress by thirteen nations when the bill was under consideration in 1897. These protests were unheeded. Yet he points out that these thirteen of the strongest nations of the world, the capitals of the most of them within a day's ride of each other, not only did not enter into a trade combination against the United States, but every one of them has enormously increased its imports from the United States since 1897.

It is agreed that European nations must look to the United States for a considerable share of their supplies of important commodities. As the largest producer of illumniating oil, of cotton and of breadstuffs, the United States cannot be ignored, and European consumers would not tolerate duties that would advance the prices of these commodities. Germany is just now hearing the protests of her farming and industrial classes against the proposed increase in tariffs on many important imports.

But it is on products for which the United States has not been so conspicuous a source of supply that the need of enlarging our markets through reciprocity treaties is particularly urged. Here the clashing of home interests will make agreement a matter of extreme difficulty. A consistent system of protection that lays duties on home products and admits free certain raw materials and such products of other countries as are not attempted here, has been built up on lines that are fairly well established. When the making of special treaties begins and the policy of bartering favors is substituted, the door is opened for an endless conflict of interests in the scramble for special advantages. Agricultural machinery manufacturers who object to the countervailing duties on Russian sugar come in competition with American sugar producers and beet sugar raisers who regard our increased importation of Russian sugar as a menace. Yet against all that is to be said of the dangers of frittering away our protective tariff in special reciprocity treaties there is the growing and insistent demand of manufacturers that reciprocity treaties be entered into. President Search of the National Association of Manufacturers said in his address at the Detroit convention in June:

"The continuance and further extension of our magnificent export trade in manufactured products depends more upon our willingness to barter privileges with our foreign customers than upon any other influence that we can discern at the present time. We can yield much that will be of value to others without causing loss or injury to our own interests. If we are not willing and able to adopt such a policy we must expect not only the loss of privileges we now enjoy, but also open retaliation as a punishment for our selfishness."

That the sentiment in favor of reciprocity has grown

rapidly among our manufacturers was the most noteworthy development of the Detroit convention. As if to emphasize in the strongest way the towering importance of this question among all the questions this association handled, the Detroit convention decided to call a special reciprocity conference of manufacturers and it is in session this week in Philadelphia. That it will urge upon the Senate the ratification of the reciprocity treaty with France is entirely likely, and this may be considered as only the beginning of a program which will have the endorsement of the President in his December message.

Beyond question there are duties in the Dingley law that might be abolished without hardship to our manufacturers. Some of them were kept there not so much because manufacturers urged them as because their retention was considered safer than their elimination. If the reduction or entire abrogation of these in the case of nations granting special preferences to American products will answer the demands of the case, the problem would not be a difficult one. Nor is reciprocity of the original sort objectionable, where free entry is given to products that do not compete with our own. But where one set of manufacturers asks that its particular interest be furthered by bartering away the protection of products of other manufacturers, the door is opened upon complications whose end is not easy to see.

Yet for better or for worse the reciprocity program is plainly ahead of us. And there is no denying that the preferential prices made on American products sent abroad have had more to do than anything else in creating the feeling that many of the protective features of one tariff are superannuated. In other words the sacrifices our manufacturers have made to get a foothold in the markets of the world are to be made the occasion for taking away protection not needed in ordinary times, but justified by the good they will do in the unusual condition that may arise, of low prices and depression abroad and prosperity at home. Whether there can be such reciprocity as President Search describes, under which "we can yield much that will be of value to others without causing loss or injury to our own interests," is much to be questioned.

## FALLING OFF IN IRON AND STEEL.

The statistics of iron and steel exports in July show a falling off in value and in tonnage, as compared with the record for July, 1900. This will be seen in detail by noting the items in the following table:

EXPORTS OF MACHINERY FROM THE UNITED STATES DURING THE SEVEN MONTHS ENDING JULY.

| | 1900. | 1901. |
|---|---|---|
| Machinery, machines and parts | $10,521,981 | $7,509,827 |
| Sewing machines and parts | 2,679,343 | 2,213,089 |
| Shoe machinery | 685,950 | 646,882 |
| Steam engines, boilers and parts | 4,810,076 | 3,867,203 |
| Typewriting machines and parts | 1,604,291 | 1,707,300 |
| All other | 13,850,249 | 10,352,786 |
| | $34 151,890 | $26,297,007 |

There has been complaint from machinery manufacturers for some months that their foreign trade was not only not holding up to the record of the past two years, but was showing a considerable decline. Just what the causes are they have not been able to say. The figures of the Statistical Bureau of the Treasury Department show that for the seven months ending July 31, 1901, the total value of our unclassified machinery exports was $10,352,786, against $13,850,249 in the first seven months of 1900 and $11,096,491 in the corresponding period of 1899. Of all kinds of machinery exports the total value for the first seven months this year was $26,297,007, against $34,151,890 for a like period in 1900. The total values of iron and steel products, including machinery exported in July this year was $7,847,325, as against $10,658,583 in July, 1900. For the seven months' periods ending with July they have declined from $76,286,148 in 1900 to $60,160,730 in 1901. The tonnage table follows:

EXPORTS OF IRON AND STEEL FROM THE UNITED STATES.

Gross Tons

| | July. | | 7 Mos. end'g July. | |
|---|---|---|---|---|
| | 1900 | 1901 | 1900 | 1901 |
| Pig iron | 15,060 | 1,313 | 89,747 | 44,565 |
| Scrap | 2,334 | 798 | 25,269 | 7,175 |
| Bar iron | 811 | 879 | 4,218 | 14,703 |
| Wire rods | 57 | 86 | 4,541 | 3,097 |
| Steel bars (not wire rods) | 1,823 | 1,371 | 28,321 | 18,463 |
| Iron rails | 249 | ..... | 4,750 | 437 |
| Steel rails | 39,849 | 31,075 | 222,308 | 230,977 |
| Billets, ingots and blooms | 7,288 | 137 | 20,178 | 26,778 |
| Hoop, band and scroll iron | 279 | 34 | 557 | 993 |
| Iron sheets and plates | 266 | 371 | 5,928 | 5,010 |
| Steel sheets and plates | 1,310 | 609 | 17,562 | 19,365 |
| Tin plates, terne plates, and taggerts tin | 5 | 4 | 68 | 403 |
| Structural material | 5,722 | 4,520 | 38,298 | 34,302 |
| Wire | 5,488 | 7,748 | 50,384 | 48,239 |
| Cut nails | 1,098 | 520 | 7,075 | 7,054 |
| Wire nails | 2,137 | 1,554 | 19,971 | 11,900 |
| Other nails, including tacks | 150 | 141 | 1,099 | 1,098 |
| | 83,816 | 51,459 | 540,274 | 474,360 |

## PERSONAL.

Mr. J. Neale Taylor, of the firm of Taylor & Wearing, Sydney, New South Wales, Australia, was in Pittsburg this week, visiting the foundry trade.

G. F. Knapp, who has had charge for the past five years of the Eastern business of Oglebay, Norton & Co., handling Lake Superior and Cuban ores, with office at 1110 Harrison Bldg., Philadelphia, has entered the Cleveland office of the above firm. The change is in view of the acquisition of the Spanish-American Iron Co., for whose ores Oglebay, Norton & Co. were sales agents, by the Pennsylvania Steel Co. Mr. Knapp will have charge as heretofore of Eastern sales of Oglebay, Norton & Co.'s Lake Superior ores.

Frank H. Buhl of Sharon, Pa., has offered to donate $200,000 to the citizens of Sharon for the erection of a library and gymnasium. In making this gift, however, he provides that the citizens of the city maintain the institution.

Alexander R. Peacock returned last week to his home in Pittsburg from an extended trip abroad.

Archer Brown of New York will return from his European trip about Sept. 15.

Wm. Brown, for several years superintendent of the Phœnix Iron Co., Phœnixville, Pa., has resigned his position and accepted a similar one with the Lukens Iron & Steel Co., of Coatesville, Pa. The employes of the Phœnix Co. presented Mr. Brown with a handsome gold watch as a token of their esteem.

It is reported that Charles M. Schwab, president of the United States Steel Corporation, will erect a handsome residence on a recently purchased site in New York City. The price paid for the property is reported to be $860,000.

E. M. Scofield, manager of the Youngstown, O., plant of the American Bridge Co., has resigned. His successor has not yet been appointed. Mr. Scofield was manager of this plant for the past eight years.

Max Mannesmann, inventor of the Mannesmann process of piercing billets for the manufacture of seamless tubing, arrived in New York last week. It is said that he is here for the purpose of establishing an American agency or connection for his German works.

It is reported that President McKinley will appoint Wm. Barret Ridgely, secretary of the Republic Iron & Steel Co., to succeed Chas. G. Dawes as controller of the currency.

R. S. Warner, president of the Republic Iron & Steel Co., has announced that he will not be a candidate for re-election at the coming annual meeting, having decided some time ago to retire from active business. A. W. Thompson, one of the vice presidents, is spoken of as his probable successor.

## THE WEEK IN THE STEEL STRIKE.

PITTSBURG, Sept. 2.—The general strike situation remains practically unchanged. At the present writing there are no negotiations on for a settlement of the controversy and it is apparent that the policy outlined some time ago by the United States Steel Corporation to have no further dealings with the Amalgamated Association as now administered is about to be carried out.

The hopelessness of the struggle is being recognized by the leaders in the fight and they are being counseled by labor leaders all over the country to settle the strike on almost any basis that may be offered. Simon Burns, a labor leader of national reputation, during the past week has been trying to bring the two parties together, but without avail. He has proposed that the strike be declared off and that the men return to work, after which terms of settlement be agreed upon. This plan, however, was opposed by the leaders of the strike at a meeting held with the advisory board last week and no acceptance of the proposition was reported from New York.

That President Shaffer's attitude throughout this entire struggle has not met with the approval of union men generally is demonstrated in an editorial which appeared last week in the *Labor World*, a local labor paper which has many members of the Amalgamated Association as subscribers and earnest supporters. This article demands the impeachment of President Shaffer on 23 specific charges and it is reported on reliable authority that the impeachment of Mr. Shaffer will be sought by members of his own organization before many weeks have passed.

J. D. Hickey, a former vice-president of the Chicago district of the Amalgamated Association, accompanied by another member of hte Bay View Lodge at Milwaukee, Wis., conferred with President Shaffer last week anent the ropening of the Bay View mill of the Illinois Steel Co. While in Pittsburg he and his colleague also conferred with other persons well acquainted with the general strike situation and the result of this visit was reported to the strikers at Bay View plant at a meeting held on Sunday. No vote was taken with reference to returning to work, but it is evident that the men are not satisfied with the continued idleness and Shaffer's handling of the strike and are anxious to return to work. At the Sunday meeting Mr. Hickey opened his remarks with a review of the conference held with the representatives of the United States Steel Corporation before the strike was declared, in which he said that Messrs. Schwab and Morgan outlined their policy toward organized labor.

He went into these details to show that Secretary Tighe and President Shaffer had misrepresented the facts when they appealed to the members of the association to strike, on the ground that the steel corporation was determined to crush organization and ruin the Amalgamated Association. Mr. Hickey maintained that the proposition offered by Mr. Morgan had been eminently fair and should have been accepted right there by President Shaffer if he had had the interests of his fellow-workers at heart. He reported that 72 per cent of the mills now are working, and that, in his opinion, the strike is practically lost.

"I obtained these facts from a man high in office in the East," said Mr. Hickey, "who was present at the conference, and I afterward confirmed the statements through members of the executive board. Judge Gary, former president of the Federal Steel Company, was present at the conference, and he is now a high official of the United States Steel Corporation. He himself, I am informed, was in favor of signing the scale for all the mills in the combine, but this did not meet with the approval of Mr. Schwab, who thought it too radical a move.

"Morgan then offered Shaffer four additional mills for which he was willing to sign the scale as an experiment, and then he told Mr. Shaffer that if the organization kept faith in these four mills and lived up to the agreement, he would pledge his word that in two years every mill in the combine would be included in the contract with the Amalgamated Association.

"This was the most reasonable proposition that has ever been made to the association, and it was clearly the duty of President Shaffer to have accepted it then and there. But instead of doing this he turned it down flatly in a speech, in which he declared that all must be signed for or none. He apparently wished to impress the steel officials with the belief that the association would compel them to sign for all, whether they wished to or not. The representatives of the corporation, however, would not be forced or dictated to in this manner, and they broke off the conferences. Since that time there has been no conference, or offer of a compromise and the nearest any one reperesenting the association has been able to get to Mr. Morgan or Mr. Schwab has been by long distance telephone to their private secretaries."

Mr. Hickey accused President Shaffer of having printed a constitution of the Amalgamated Association in which three important clauses were eliminated. He said Mr. Shaffer assumed an attitude of defiance during the Pittsburg conference last week, and had little to say in answer to questions put to him. The other members of the executive board, however, seemed to be in accord with Mr. Shaffer's views.

At Cleveland, O., last week an appeal was made to the courts for an injunction to prevent he strikers at Canal Dover, O., plant of the American Sheet Steel Co. from interfering in any way with the men now employed at the plant. Judge Wing, sitting in the United States Circuit Court granted a restraining order the text of which follows:

"It is ordered, adjudged, and decreed that a temporary restraining order, to continue until the further order of the court, be and is hereby granted, restraining and enjoining the defendants, Dover Lodge, No. 37, of the Amalgamated Association of Iron, Steel and Tin Workers; Pingree Lodge; Ernest Bullock, president, and John Roderick, secretary, William Thompson, Benjamin Moses, president, David Saunders, recording secretary, William Thompson, financial secretary of Pingree Lodge; the respective members of said lodges, and each and all other persons associated with them, from in any manner interfering with or hindering or obstructing or delaying or stopping any of the business of the complainant, its agents, servants, or employes, in the operation of its plant in the village of Canal Dover; and from entering upon the grounds or premises of the complainant for the purpose of interfering with, hindering, delaying, or obstructing its business in any way, form, or manner; from compelling or inducing by threats, intimidation, force, or violence any of the employes of the complainant to refuse or fail to perform their duties as such employes; also restraining the defendants from congregating at or near the premises of the complainant, or from picketing or patrolling the approaches to the complainant's plant. This order to continue in effect until the further order of the court."

All efforts on the part of the Amalgamated Association to get the men employed at the Duquesne plant of the Carnegie Steel Co., located at Duquesne, Pa., have proved futile and they have about given up all hopes of getting the Duquesne men out.

James H. Nutt, head of the labor bureau of the Republic Iron & Steel Co. came to Pittsburg last week for the purpose of having the Amalgamated scale signed. An agreement on the scale had been reached some time ago but the scale was not signed by both parties. To prevent any breach of contract on the part of the Amalgamated Association the formality of signing the scale was gone through with.

At Elwood, Ind., the merchants according to report have withdrawn the credit of the strikers and will refuse them further credit. The merchants declare that they have taken this action to protect themselves as well as the men who are now on a strike.

Cleveland reports the first violence since the strike. According to the reports non-union men employed at the Crescent plant of the American Tin Plate Co. were attacked by the members of the Amalgamated Association, and to protect themselves fired into the crowd. One of the strikers was shot through the leg but was not seriously injured.

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The bursting of a flywheel in the engine room of the rod mill of the Cuyahoga Steel & Wire Co., at Cuyahoga Falls, O., last week, has resulted in the shutting down of the rod mill until the fly wheel can be replaced. Opcrations will probably be resumed next week.

# The Milwaukee Harvester Co.'s Foundry.

A foundry, completely equipped with labor-saving devices, well lighted, properly ventilated, and arranged to produce a maximum quantity of finished castings with a minimum of labor, is the dream of the twentieth century foundryman. The ideal structure completed this year by the Milwaukee Harvester Co., of Milwaukee, Wisconsin, comes very close to the realization of such a dream.

In 1880, a foundry 50x100 ft. produced all the gray iron used by this company. New buildings and additions have been erected from time to time since then, and in 1900, the building described in this article was finished. It is 100x400 ft., two stories high, the molding room being on the second floor. To avoid vibration and consequent loss of molds the construction is very heavy and substantial; in fact, if rails were provided, a loaded freight train could be run over this second floor without affecting it.

A steel truss roof covers the building, leaving a clear space for molding of 40,000 square feet, unobstructed by a single post or other support. An annex, 50x100 feet, containing the cupolas, core room, etc., adjoins the main building on the west, and is so located that it will be at the middle of the foundry after an addition of 200 ft., already contemplated, has been made at the north end.

FIG. 1—FOUNDRY OF THE MILWAUKEE HARVESTER CO., MILWAUKEE, WIS.

An overhead trolley-track system, composed of three parallel tracks, runs the full length of the molding floor down the center, as shown in the plan. A large loop, with a center straight-cut in front of the cupolas, is connected with the main tracks by switches and turn-tables in such a manner that the full output of the cupolas (36 tons an hour) can be delivered to the floors without interference or delay. A branch track connects the main system with an elevator, equipped with an overhead rail; all castings are taken in this way on trolley-carriers to the tumbling mills below. An ingenious safety device at the elevator stops the trolley when the elevator is not in proper position to receive it. All switches and turn-tables are likewise arranged to prevent the possibility of the trolleys leaving the track. Switch-throwing devices are located eight or ten feet from the switch itself, so that the ladle-pusher can set his switches before he reaches them by simply pulling a chain.

The larger castings are made in the south end of the building, each floor being furnished with a crane, running on the lower chords of the roof trusses. An air hoist, suspended from each crane, is used for handling the molding machines and flasks, and for manipulating the ladles in pouring. The molders work continuously, a separate gang of men cutting sand and pouring. Laborers bring sand and supplies to the floors and remove the castings. Water pipes run along the sides of the room with a faucet for each molder. A push button at each floor connects with an electric annunciator in the core room, enabling the molder to signal for the particular cores needed in his work.

We have not space to describe the many ingenious labor-saving devices installed here, but will speak of one which particularly deserves notice. This is designed for drying the lining of large ladles and cupola spouts. A steel cylinder with perforated bottom, carrying a small charge of lighted coke, is inserted into a ladle, a sheet steel cover being placed over the mouth of the ladle to retain the heat. A blast of air through a connecting pipe produces an intense, steady heat, drying the ladle in about one-fourth of the time required in the usual firing, and without ashes, dirt or smoke.

The cores are made on the second floor of the foundry annex. Over each bench is a sand spout, through which the proper mixture is delivered to the workmen from the mixing room above. An automatic device delivers the sand as wanted and signals to the mixer when the spout is empty by ringing a bell and lifting the numbered cover of the spout. In the mixing room are machines for pulverizing and sifting rosin and for mixing core sand. The rosin pulverizers are similar to a tumbling barrel, with the addition of two pieces of loose shafting inside, which, rolling over each other in a direction opposite to the motion of the barrel, soon reduce the rosin to an impalpable powder.

The core ovens, similar in some respects to the Taggart oven, were built according to designs of Superintendent Crandall. The cores are placed on steel skeleton shelves fitted with supporting wheels at their inner ends. A series of hand-hooks (one for each shelf) is supported between bars suspended from the overhead trolleys. When a shelf is to be drawn out, the hand-hook is engaged with it, and turned down on its cam-mounting. This lifts the outer end of the shelf slightly so that it is supported by the trolley and the inner wheels, and moves in or out with slight effort. Coke is burned and combustion is aided by an air blast and jets of steam. The ashes drop from the grates through a pipe to a receptacle on the floor below.

The charging floor (third floor of foundry annex) is crossed by a narrow gauge track, which terminates at the elevators at each end of the room. All material for charging is brought to this floor by the elevators on especially designed cars or trucks. Each track for pig iron, for example, is built to hold enough iron for one charge; it has flat-faced wheels to run anywhere on the floor. The large transfer trucks, with flanged wheels, are made with a low platform, and run on a depressed

track, so that the pig iron trucks can be pushed upon them from the floor. The cars for coke and scrap iron have automatic dumping boxes, each large enough for one charge.

The floor of the entire lower story is of concrete and cement, to sustain the weight of the castings stored here, which, in some places are piled to the ceiling. Room A is for the storage of the larger castings, such as binder and mower frames, wheels, etc. Large bins are arranged along the west side of this room for the storage of small castings These bins are labeled and indexed to avoid delay in finding the required

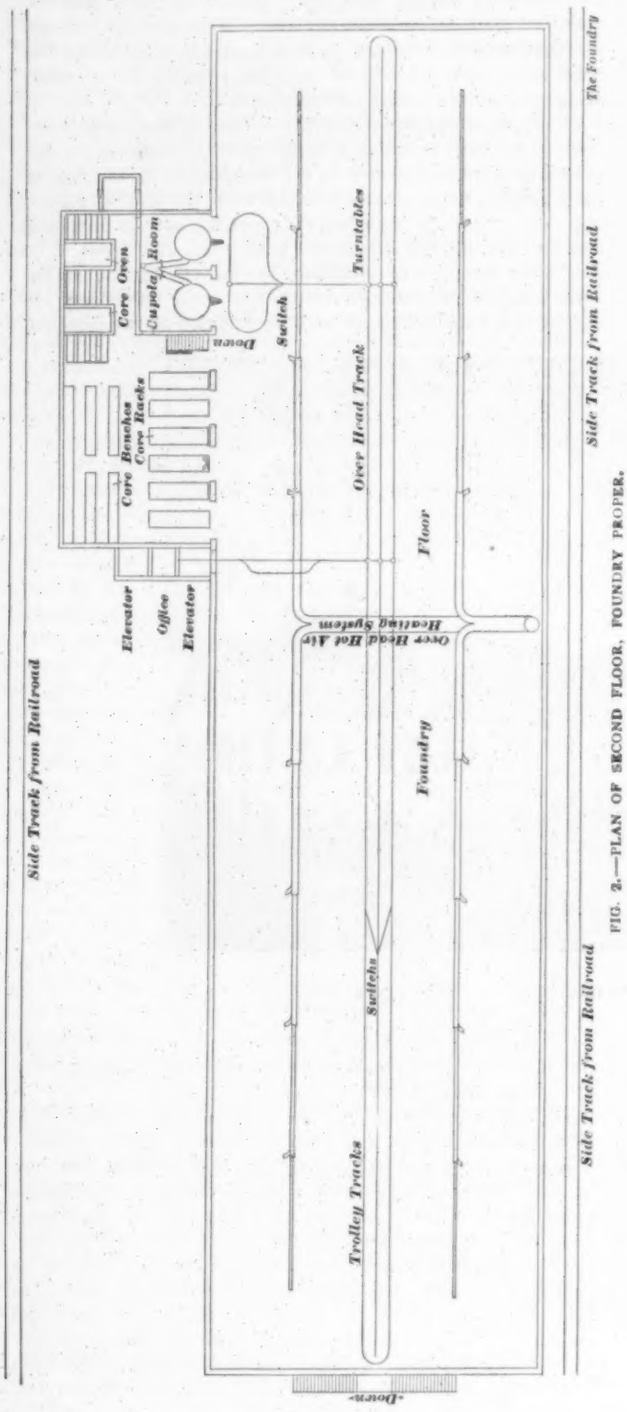


FIG. 2.—PLAN OF SECOND FLOOR, FOUNDRY PROPER.

unloaded direct from the suspended car into the rattlers. After tumbling, the clean castings are conveyed by means of the trolley (not shown in cut) to the chipping room, and when finally finished they are transferred to the storage bins by the same method. The tumbling barrel room is supplied with an elaborate system of dust extractors, whereby the dust and dirt are taken from the rattlers and carried through an exhaust pipe to a dust filler outside of the building; consequently this room is neat and clean. The pattern storage room (E) is a fire proof apartment, fitted with racks and

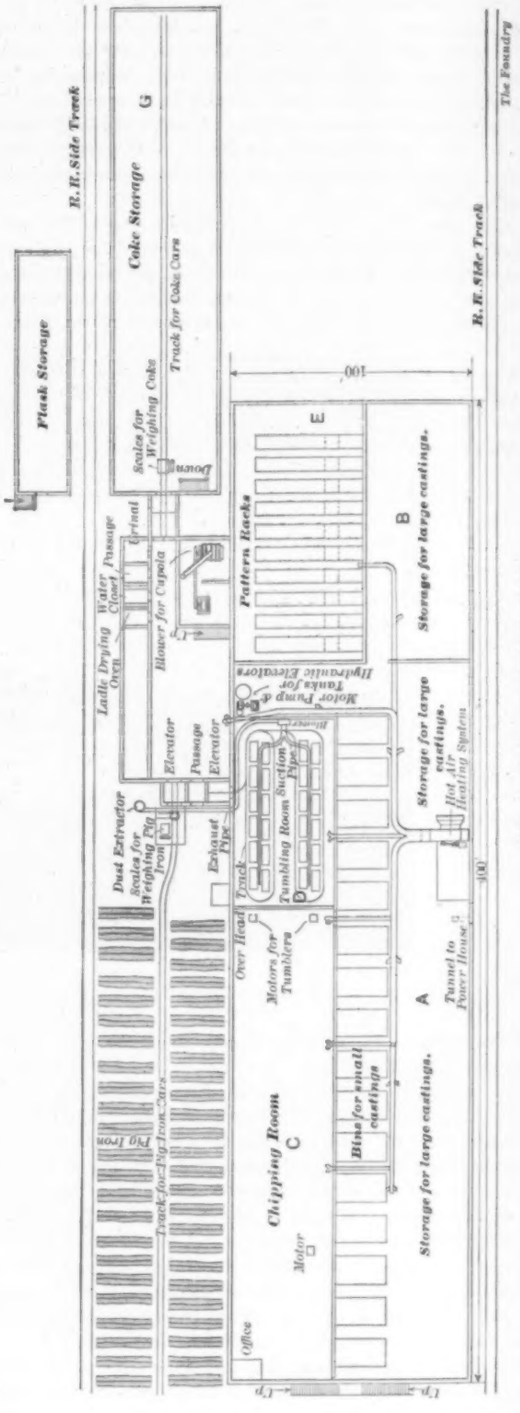


FIG. 3.—PLAN OF GROUND FLOOR.

pieces. Room B is similarly fitted up for castings used on a different style of machines. Room C is equipped with emery wheels, vise benches, etc., for chopping and grinding the castings. The dust is removed by an exhaust system. Twenty-four tumbling barrels are located in room D, in two groups of two rows each.

An overhead trolley system brings the castings from the molding room on the second floor down the elevators, and thence to the tumbling barrels, where the rough castings are

shelves, systematically arranged, labeled and indexed, so that it is an easy matter to find any desired pattern.

The first floor of the foundry annex shows the location of the motors, blower, etc., and on the west side will be noticed a drying oven for hand ladles, closet rooms and a large bath room fitted up with hot and cold shower baths. The closet and bath rooms are finished with heavy glass walls, which resist the action of water better than marble or cement. Directly north of the foundry annex is a one-story brick

structure, G, with basement 45x200 feet. The basement is used for the storage of scrap iron and sand. It is equipped with narrow gauge track running from the bins to the elevator. Sand is taken directly from cars on the railway track west of this building and by a system of chain conveyors is deposited in the bin for core sand or molding sand, as the case may be.

Scrap iron is unloaded directly into the basement through chutes, which reach up to the cars. Coke is stored on the

piled and repiled, several times before reaching their destination.

In addition to the foundry, a five-story wood-working building has just been completed. In this building, as it is throughout the plant, all machinery is divided into groups, each group being driven from its own line shaft, belted to a motor, so that the various departments are independent of each other in the matter of power.

The buildings and grounds are abundantly lighted by both

FIG. 4.—INTERIOR VIEW OF FOUNDRY.

first floor, which is level with floor of cars and is traversed by a narrow gauge track leading to the elevator. A tunnel under the railway track connects the basement of the storage building just mentioned with the basement of a smaller building used for storing fire brick and clay, limestone, coal, etc. The pig iron yard, south of the annex, has a capacity of over one hundred piles, each pile being one carload. These piles are in two rows; the railway switch running along the western edge of the yard, and the narrow gauge track between the rows. The ground where the iron is piled was first covered

arc and incandescent lamps. The electricity for this purpose and for driving the machinery is supplied by three Westinghouse alternators. The engine room also contains the fire pumps, with a capacity of 2,400 gallons a minute, connected with hydrants and automatic hose reels, which are scattered through the plant. The air compressor is also located here, to supply air for the pneumatic lifts and tools used in all departments. The boilers (horizontal fire-tube type) are equipped with patent smokeless furnaces. Sawdust and shavings from the wood department are brought by a system of fans and blow-

FIG. 5.—SAND MIXING MACHINES AND HOPPERS THROUGH WHICH CORE SAND IS DELIVERED TO CORE ROOM BELOW.

with several inches of cinders. After this covering was rolled level, a floor of 3 inch oak plank was laid. The ends of the piles abutting on the narrow gauge track are plainly numbered. Samples from each car are analyzed when received, and the mixture made accordingly, the workmen putting on the trucks the amount of each pile specified on the mixing card.

The great saving in time and labor in this foundry is due to the fact that nothing is handled unnecessarily. By former methods, the material and product were loaded and unloaded,

piping to the furnaces, and fed to the fires automatically. Concentration is the underlying principle of the arrangement of this plant, and the buildings are high and close together. High-speed hydraulic elevators convey material from floor to floor, and it is taken from one machine to another with scarcely an interruption until finished and delivered to the erecting rooms.

The present capacity of the factory is 80,000 machines a year; additions are now contemplated to increase this number, in response to a growing demand for the high-grade harvesting machinery produced.

## QUESTIONS IN MACHINE MOLDING.

An article dealing with some thoroughness with the problem of machine molding is contributed to *Cassier's Magazine* by Joseph Horner of Bath, Eng. Though written from the standpoint of English experience, Mr. Horner's article closely parallels what has developed in the same connection in the United States. We make some extracts below:

Many years ago, when the advantages of machine molding were first grasped, attempts were made to save the labor of hand-ramming. Scores of patents have been granted for devices by which this was to be avoided. But the difficulty in all has been to ensure equal ramming over areas in which sand is of different depths, and alike against horizontal and nearly vertical faces. Uniform consolidation of the sand is difficult in such cases, and apart from the use of special presses, either rigid or elastic, the contours of which follow approximately the contours of the pattern being rammed, it is impossible to obtain uniform results. Another practical point is that in many molds it is desirable to ram some parts harder than others, and to give special attention to weak and slender parts by using a different grade of sand, by local moistening with water, or clay water, by the insertion of nails and rods, devices of which a molder fully understands the necessity, but which are not provided for by machine-ramming. For those classes of work in which these necessities do not exist, and they constitute a large number, machine-ramming fills a useful place.

In some very successful modern types of machines no attempt is made to use power for ramming, the functions of the machine being limited to the advantages derived from plating patterns and gates, and to their withdrawal. It is concluded, therefore, that if the class of work done in any shop is such that no economy can be derived from the application of power to ramming, then it is far better to install hand machines, and save the expense and complication of pipes and power plant.

The difference in the time occupied in hand-ramming or machine-ramming is not always so great as to be an important factor in the calculation of total time saved by machine over hand-molding. The saving obtained is due in a much greater degree to other advantages. The economy lies in the system itself, which involves putting patterns on plates, on gating, on true vertical lifts, on the training of unskilled men to do work otherwise done by skilled molders, and to the difference between jobbing and repetitive work. By comparison with these the single detail of ramming is of little importance. The next question is that of the withdrawal of patterns, and this is nearly as important as that of ramming. It is a clear gain, to the advantage of the work done on a machine, if the uncertain element of rapping, with enlargement of the mold which it produces, be eliminated, and the castings be turned out uniformly to dimensions. But some patterns of considerable depth and little taper refuse to draw without fracture of the sand unless they receive a considerable degree of loosening, or alternatively, unless the sand over them is confined by a stripping plate; and so we find these two devices in use, the vibrator system, and the closely fitting stripping plate through which the pattern is drawn, and regarding the relative values of which opinions differ.

In rapping a pattern by hand, the vibration is chiefly confined to the pattern, and the effect is to widen the boundaries of the sand by which it is enclosed. But in jarring the platen of a machine the vibration is communicated to the sand equally with the pattern, and there is some risk of the sand becoming loosened and breaking down at the time of withdrawal, a tendency which is aggravated when it has been consolidated by power pressure instead of hand ramming judiciously moderated in different parts. For this reason the vibration of the mold is not regarded so favorably as withdrawal through a stripping plate. This is most efficient, for the deepest pattern can be drawn through a plate without fracture of the sand. But the objection to the device is its expense, and the cost must be discounted by the numbers required from a given pattern.

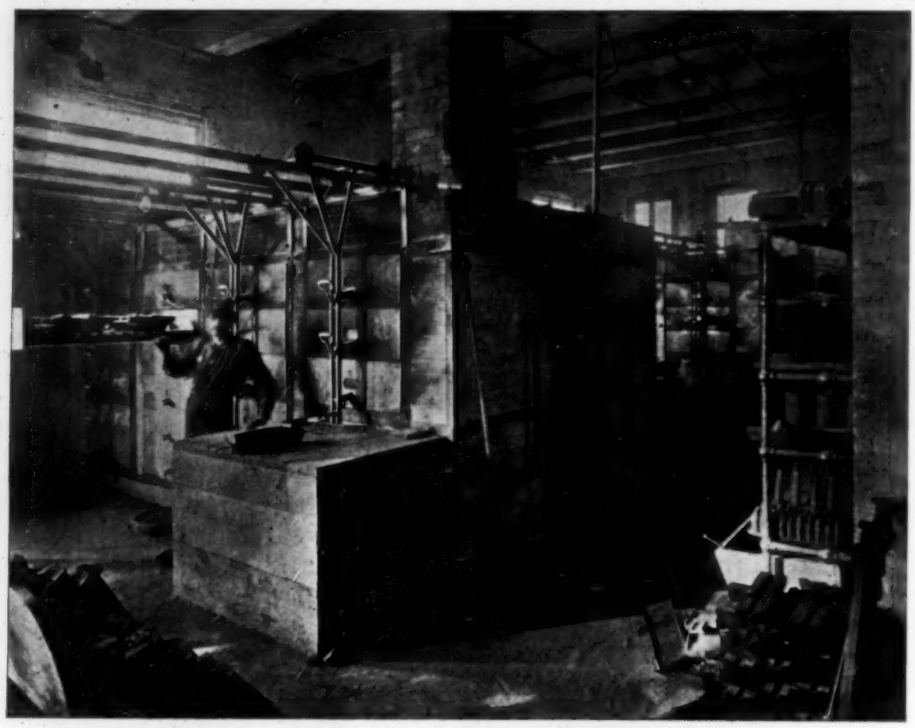

FIG. 6.—A SECTION OF THE CORE ROOM AND CORE OVENS.

Yet neither is the question of the use of stripping plates of a general character to be settled off hand for all jobs alike. Mainly, the question is one of shape of the pattern. Anything which is shallow, with tapered or rounded edges, does not need a stripping plate. Neither do semi-circular patterns, even though of considerable depth, provided there are no square shoulders left at the ends. When work of this kind will permit, plenty of taper is put at such ends. Patterns, on the other hand, which are deep and square at the edges cannot be drawn on a machine by rapping alone. Spur-wheels are a case in point. Even though shallow, these must be drawn through plates.

The usual method of fitting stripping plates around patterns is by filing, which, in the case of those having irregular out-

lines, becomes expensive. In one instance plates are fitted at less cost by casting a zone of Babbitt metal in the plate around the pattern, with the result that it takes the outline of the latter. The iron plate itself is cast roughly with an opening about an eighth of an inch round the pattern. Its upper edge is recessed to a width of half an inch and a depth of ⅜ inch, and is drilled with holes spaced at about ¾ inch apart, wire nails being driven in with the heads about 3-16 inch below the surface. Both top and bottom faces having been tooled, the plate is laid around the pattern on the machine, asbestos string is placed between the backing of the pattern and the opening cast in the plate, putty is laid round the top of the plate, and Babbitt metal is poured in. After a little trimming of faces and edges the plate is ready for use.

Another matter which has received considerable attention of late years is the question of fixed vs. portable machines. The earlier types, and probably the largest number still in use, whether operated by hand or power, are fixed. This, though unavoidable in power machines, is not so in those machines which are hand-operated. It has now become evident that by

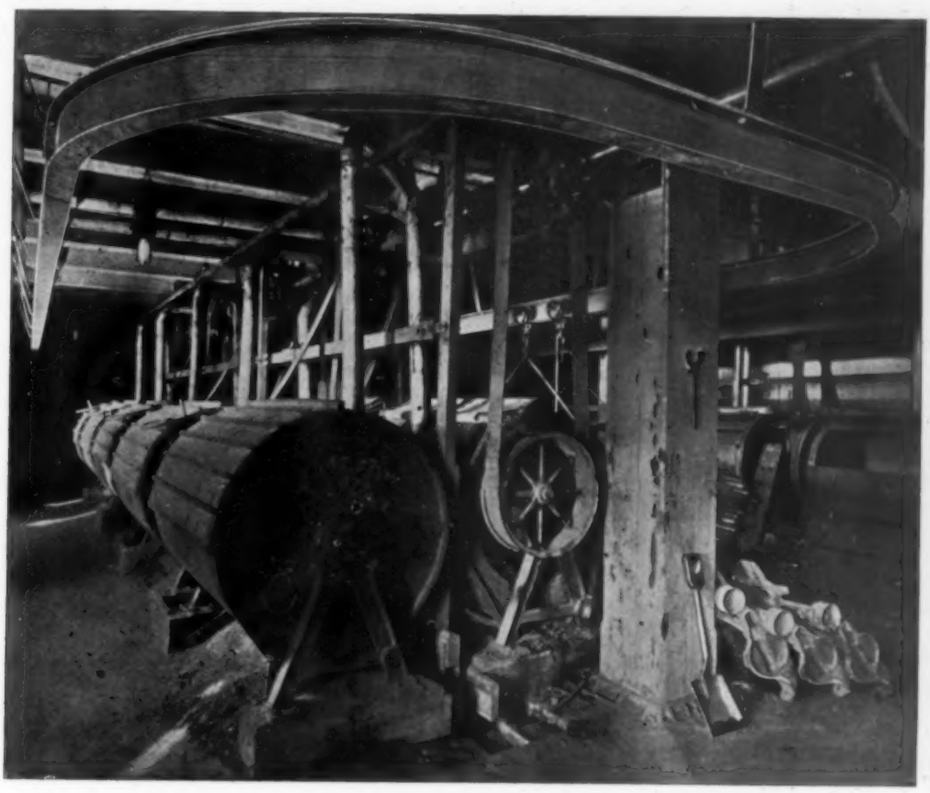

FIG 7.—TROLLEY TRACKS AND TUMBLING BARRELS, WITH DUST EXHAUSTERS.

mounting machines on wheels certain economies may be effected in the saving of tracks and in conveying systems. It is a case of taking the machine about over the floor, instead of bringing everything to it. The machine makes a certain number of molds while in one spot, and is then moved to some other point, making other similar groups in succession. This system has many points to recommend it. But whether flasks and sand shall be brought to the machine, or the machine taken to these, is a detail on which none but general rules can be laid down, because every foundry must needs be a law unto itself.

In the first place, only the lighter machines are made portable. There is no question of portability, therefore, in the case of the heavy ones. The flasks and sand must come to these, and the molds be taken away from them. And in the most highly elaborated systems carrying by laborers is supplanted by some system of conveying. In some British shops an annular ring is suspended from a central post with guys, and carries round the completed molds. This is termed a circus. The sand and flasks are brought to the machines on trolley tracks. In other shops the completed molds are laid on double rows of rails adjacent to the machines ready for pouring. These systems are fairly economical, because although the materials are brought by hand, the molds are not carried far. But they are eclipsed by some of the methods of conveying adopted in a few shops in which the sand and boxes are brought on conveyors and the molds are carried away by the same means. This represents the most advanced stage of the present time.

Again, the question of fixed vs. portable machines is one which must be decided partly by the system of pouring adopted in a foundry. If the method of continuous casting be adopted, there is little advantage in having portable machines. The value of these lies in foundries where pouring is done but once or twice a day, at fixed periods, and in readiness for which a large number of molds have to be prepared on the floor. Of course, as machine molding becomes extended, the continuous casting system develops. Facilities for this do not exist in foundries where molds are made exclusively by hand. In the latter it is difficult to make them fast enough; in the former it is often difficult to pour the molds as fast as made, and the tapping hole of the cupola has to left open, the metal running all the while. Another point is that, to mold by hand and cast but once or twice a day, demands an immense stock of boxes and other adjuncts which become cumbersome, so that it is better to cast continually and lessen the floor area required for placing them out.

In laying down and operating molding-machines, the total costs must be compared with the total costs of hand-molding. The expense of the machines is often not so heavy as that of the preparation of the patterns, which for permanent service must be of metal, got up with the utmost precision and finish, properly gated, and kept in good condition. A good and fairly constant volume of work is necessary to pay for these. The employment of unskilled men to operate the machines can be remunerative only when the volume of work is constant. In foundries dealing with general work the molders can be changed from job to job. Not so the machine hand. If the volume of machine work slackens, the attendant cannot do molding that requires skill, but must mark time, or be dismissed, or suspended until work returns. The conditions most favorable for machine molding are those in which a large volume of work of a similar character exists.

The system is, however, of a very elastic character. Having

a machine, or machines, in a general shop, it is not necessary that they should be in constant use to produce some economies at least. Plain, unjointed patterns, either of wood or metal, one face of which is flat, can be screwed to plates and a few molds made. The gain then is a little time saved in sleeking the joint, and in getting a better lift with the machine with less risk of broken sand than can be ensured by withdrawal of the pattern by hand. But merely transferring molders' work from the floor or bench to the machine does not make any difference in the work of ramming. If this requires a molder's skill on the floor, it will also require that skill with the machine, because precisely the same knowledge and experience are required in each case. But the machine work will be done cheaper, for reasons already given. But when machine molding is spoken of, something different from this is generally understood, being applied to work which is constantly done upon machines and in performing which the aid of skilled labor is either dispensed with entirely or reduced to microscopic proportions. The knowledge of a skilled man is necessary to settle details and start the work, after which trained laborers can carry it on.

To sum up, the writer's opinion is that for the average work of by far the largest number of foundries the machines which should be installed are the hand-rammed, stripping plate, portable types. In certain cases, which must be decided from a knowledge of special conditions, the fixed machines and power ramming will be found of service, but they are exceptional. The greatest saving effected in molding-machines lies in the withdrawal of the pattern absolutely perpendicularly, and not in the ramming. The latter must be done with all the same precautions and all the variations in detail of common molding. But the difference in drawing a pattern by hand and drawing it by machine generally makes the difference between incorrect or accurate dimensions, between a broken mold and an uncertain quantity of mending and an unbroken one. The problems involved in the selection of a molding machine can, therefore, be determined only by a full knowledge of the conditions which rule in each individual shop.

There is no lack of choice of machines, and some of the older ones are as good as the more recent ones for some classes of work. Every year new types are introduced, indicating a growing appreciation of the methods of machine-molding. Outside these, again, lies the system of making toothed wheels by machine, a class of work by itself. In a few foundries there is little hand work now left.

FIG. 8.—CHARGING SCAFFOLD.

## SUGGESTED AT THE SHOP.

BY F. O. REMAN.

I got into a drafting room recently and found what a friend of mine calls a left-handed job. It seems that a tracing had in some way gone astray—lost or destroyed beyond recovery—and there was nothing in sight but a blue print or two as souvenirs of the departed. A draftsman took one of the blue-prints, stretched it out on the board, and followed the lines and lettering with drawing ink of the waterproof type. The blue print was then allowed to dry for a short time to make sure that there was no moisture about the work when the next process was taken up. This consisted in the preparation of a bath of soda and water. The print was immersed in the mixture and the black lines soon stood out prominent against the bleached background.

* * * * *

It worked all right, was eminently satisfactory to the people most concerned, and that is the usual standard of shop success as I understand it. Somehow, I fail to see why it would not have been as good a plan to make a new tracing from the blue-print and thus save the washing, the drying and the probable wrinkling of the print that was. I have a lot of respect for any method that does the work it is intended to do and there is no question that the inking in of the blue-print would be less trying on the eyes than the task of getting a tracing from the print in the usual way. It is simply a case of choice between two evils.

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This sort of worry is avoidable by removing the causes that lead drawings astray. Having them carefully indexed and having one man responsible for their existence. One firm of my acquaintance puts the tracings into large envelopes. Each envelope is devoted to several tracings, and the numbers of the drawings contained are indexed on the outside of the wrapper to correspond with a card index. This plan keeps the tracings clean, in easy reach and orderly condition. I have heard of firms who prefer to roll the tracings and preserve them in tubes; but I never felt very cordial toward that solution of the problem. The rolled tracing is apt to wrinkle when an effort is made to put it under the glass of the printing frame and on other occasions it is objectionable from the

habit of traveling toward the floor on the slightest provocation.

* * * * *

There is one instrument that the draftsman purchases with no great amount of pleasure because it is seldom needed on average work. I refer to the beam-compass. The drawing of large arcs and circles comes along once in a while and the borrowing of the necessary tool is not pleasant; on the other hand it looks like extravagance to invest so much money in something that is rarely used. An engineer, who occupies an enviable position in his profession, has occasion now and then for the use of a beam-compass. He has no elaborate outfit for the job; a slender wooden rod, two pieces of cork, and the needle and pencil legs borrowed from another pair of compasses. The cork pieces fit on the rod and the needle and pencil legs pass through the corks at right angles to the rod. The elasticity of the cork has enough grip to cling closely to the parts and at the same time permit ready adjustment of the setting of the tool. The material, wood and cork, is at once cheap and light. Given the same amount of skill it is capable of doing just as good work as a much more expensive outfit.

* * * * *

Talking about large curves and circles, brings to mind a machine whose graceful lines have been quite generally admired. The outlines have a bold, even sweep with no evident point of union between the various curves, the one growing out of the other. Some curiosity was aroused as to the means by which this design had been worked out. Possibly a special curve of logarithmic or other type had been employed, perhaps a combination of many circular arcs joined with unusual skill and judgment. The designer gave away the snap eventually. It seems he got a length of copper wire and bent it at leisure into the desired shape to lay out his curves full size. After drawing the one side he turned over his wire template and laid out the reverse series.

* * * * *

The curves used by draftsmen are capable of improvement. The edges should be graduated and the various sizes should be arranged in some definite ratio so that the pattern-maker can reproduce full size a drawing made to scale. Now it is common to find that the designer, after hunting for the portion of the curve he wishes to use, will put a pencil mark on the tool if he has occasion either to repeat the curve or to reverse it. These pencil marks are essentially private, for the man who applies them soon forgets the particular purpose of each, and what is a makeshift at best soon becomes absolutely worthless as a means of reference. The graduations would do away with this and provide a method of accurate reference. A friend of mine claims that the curve is out of date anyhow and that it should be reckoned as a misdemeanor to use anything of the sort. Certainly the radii of circular arcs can be laid off in actual measurements, leaving little or no chance for the reader of the drawing to go wrong. Drawings get into the hands of many men, frequently travel from shop to shop, under conditions where it is out of the question to call upon the original designer to unravel any tangle that may develop, and a drawing that does not tell the whole story is not a shop drawing at all.

## Statistical Position of Pig Iron.

Rogers, Brown & Co. make the following comment on the statistics of pig iron stocks and their bearing on the market: "The statistical situation is impressing the trade, and the sentiment of weakness is yielding to the conditions prevailing, which justify a stronger market. A retrospect is always interesting, if not instructive or a guide for action. Two years ago this day, Southern No. 2 foundry was $15 to $15.50 Birmingham, and total furnace stocks of the country were 133,283 tons. One year ago, Southern No. 2 foundry was $11 to $11.50 Birmingham, and the total stocks of the country were 706,632 tons. Today, Southern No. 2 foundry is $10.25 to $10.50 Birmingham, and the total stocks, Aug. 1, 399,553 tons."

FIG. 9.—IN FRONT OF THE CUPOLAS, SHOWING SYSTEM OF TROLLEY TRACKS.

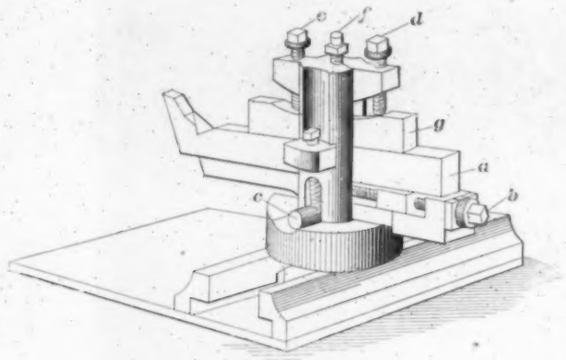
Capt. Thos. Walters, superintendent of the Lake Angeline mine, this city, who is making frequent trips to the Mesabi range in the interest of his company, is of the opinion that their new possessions on the Mesabi will turn out even better than they at first figured. As he learns more of the formations and has had time to more carefully examine the lands he is convinced that they bought better than they knew. The company is one of the largest independent operators in the steel business in this country, the Jones & Laughlins being one of the oldest concerns in the business of steel making. Capt. Walters is thinking of changing his residence from Ishpeming to Duluth. The company is also developing properties on the Gogebic and Menominee ranges.—[Iron Ore.

Schumacher & Boye, of Cincinnati, announce that they are now prepared to furnish 20-inch and 36-inch engine lathes. The 36-inch lathe can be either back or triple gear. Both tools are of new design and contain a number of special features.

## A NEW TOOL POST FOR LATHES.

The tool-post shown in the illustration has been designed with a view to permit of various adjustments toward and away from the work, parallel with the work or in a vertical direction; another object of the invention is to provide means on the tool-post for preventing the latter from rotating relatively to the bed-plate when a heavy cut is being taken or when additional care is advisable to prevent any yielding of the tool, as for example whilst cutting threads. The line engraving shows a perspective view of a tool-post constructed in accordance with the design of the invention under consideration; the arrangement being applied to the bed-piece, equipped with a tool along with the holding and feeding devices.

The cutting tool *a* rests upon a rocker-support having an adjusting screw *b* provided with a nut engaging with projections in the under side of the shank of the tool *a;* the rocker-support is mounted on a fulcrum-pin *c* which rests in two notches cut across the annular tool-seat, the latter resting on the top of the bed-piece, which in turn is cut out to form the usual T-slot to fit the neck and collar of the tool-post. The fulcrum-pin *c* is provided with an enlargement intermediate of its length, which may comprise a number of flat faces, each of which forms a seat for the lower end of a binding-screw, which can be inserted through one or both of a pair of side lugs on the post above the fulcrum-pin, the screw fastening the fulcrum-pin in place by holding it in contact with the tool-seat, drawing the tool-post collar upward at the same time and binding the device firmly to the bed-piece.




NEW TOOL POST FOR LATHES

The tool-post is recessed above the side lugs to permit the application of a wrench to the head of the binding-screw. On top of the lathe-tool *a* is a clamping-block, or gib, *g* which passes through the tool-post slot and bears throughout its length against the upper edge of cutting-tool, for holding the same rigidly in place on the rocker-support. The clamping-block *g* is provided with a concave upper surface, designed to be engaged by the lower ends of the pair of set-screws *e* and *d* tapped through the projections on the top of the tool-post; the screws bearing firmly against the clamping-block and binding the tool and rocker support against movement after the parts have been adjusted to the proper position and relation to the work. The lower surface of the tool-post head is rounded, or convexed, in order to permit of the free tilting of the clamping-block and the lathe-tool.

The clamping-block is hung from the post-head by means of a threaded shank, or stem, *f* having an adjusting nut, by means of which the clamping-block is not only hung from the tool-post head, but is capable of being adjusted up or down to suit the size of the lathe-tool shank. The stem *f* passes through a slot in the clamping-block *g* and has a head resting in a recess covered by a plate on the lower surface of the block. The tool-post is provided with a dovetail groove, for the reception of a removable key tapered from end to end, the key when in place being adapted to bear flatwise against one of the walls of the T-slot; this prevents the rotation of the tool-post. The inventor shows two tool-posts placed side by side, the shanks of the tools being bent in reverse directions so as to bring the cutting-points near together; so that one of the tools may make the first roughing cut whilst the adjoining tool may be utilized for producing the lighter or finishing chip. The tool-post is the invention of Byron Coburn, Leroy, N. Y.

## NEW STANDARD SHAPE CLASSIFICATION.

The concerns party to the agreement on structural steel have revised the classification of standard shapes and have issued the following new list of extras under date of Aug. 26, 1901. It is signed by the following Central Western concerns: Jones & Laughlins, Ltd., Carnegie Steel Co., Cambria Steel Co., American Steel Hoop Co.:

HEXAGONS.

| | |
|---|---|
| ¾-inch and larger | Base. |
| ⅝ and 11-16 inch | $0.10 extra. |
| ½ and 9-16 inch | .20 " |
| 7-16 inch | .40 " |
| ⅜ inch | .50 " |
| 5-16 inch | .60 " |

On the intermediate sizes the extra will be determined by the average of the next higher and lower sizes.

We roll from 9-32 to 1 inch by 32ds, and 1 to 2 1-16 inches by 16ths.

EXTRAS FOR CUTTING TO SPECIFIED LENGTHS.

| | |
|---|---|
| Hot sawing or shearing, 24 inches and longer | $0.05 |
| Hot sawing or shearing, 12 to 24 inches | .10 |
| Hot shearing, 6 to 12 inches | .15 |
| Machine cutting, specified lengths, 12 to 24 inches | .20 |
| Machine cutting, specified lengths above 24 inches | .10 |
| Machine cutting, specified lengths, less than 12 inches, according to contract, but not less than 3-10th on each side. | |

ANGLES.

| | |
|---|---|
| 1½ x 3-16 inch and heavier, but under 3 inches | Base. |
| 1 to 1¼ x 3-16 inches and heavier | $0.05 extra. |
| ⅞ x 3-16 inch | .10 " |
| ¾ x 3-16 inch | .15 " |
| ⅝ x ⅛ inch | 1.00 " |
| ½ x ⅛ inch | 1.50 " |
| Angles ¾ inch and larger, smaller than 3 inches by ⅛ inch thick, within our range of sizes | .05 " |
| 3 x 3 inches by less than ¼ inch thick | .25 " |

TEES.

| | |
|---|---|
| 1½ x 3-16 inch and heavier, but under 3 inches | Base. |
| 1¼ to 3-16 inch and heavier | $0.05 extra. |
| 1 to 1⅛ x 3-16 inch and heavier | .10 " |
| ⅞ x ⅛ inch and thicker | .25 " |
| ¾ x ⅛ inch and thicker | .30 " |
| ⅝ x ⅛ inch and thicker | 1.00 " |
| Tees within our range of sizes, 1 inch and wider by ⅛ inch thick, but smaller than 3 inches | .05 " |

CHANNELS.

| | |
|---|---|
| 1½ to 3-16 inch and heavier, but under 3 inches | Base. |
| 1 to 1¼ x 3-16 inch and heavier | $0.05 extra. |
| ⅞ x 3-16 inch | .10 " |
| ⅝ and ¾ x 3-16 inch thick | .15 " |
| ⅝ x ⅛ inch and thicker | .30 " |
| ½ x ⅛ inch and thicker | .50 " |
| Channels ¾ inch and wider, but under 3⅛ inches thick | .05 " |

All extras are net, to be quoted full extras on the list.

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The improvement now being made by the Girard Boiler & Mfg. Co. of Girard, O., consists of an extension to its buildings, making an addition of about 10,000 sq. ft. floor surface. A new office is to be built and fully equipped. The latest tools in the line of punches, air compressors and cranes, with a 14-ft. 2-inch bending rolls for 1¼-inch plate. Outside equipment for field work will consist of a 50-h. p. hoisting engine, air compressor, etc. The company has just been awarded the contract for the La Belle furnaces at Steubenville, O., consisting of four stoves and one furnace, amounting to over $30,000. The engineers are G. W. McClure, Son & Co. of Pittsburg.

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The Buffalo Iron Co. of Nashville, Tenn., has placed an order with the Weimer Machine Works Co. of Lebanon, Pa., for a 42x84x60-inch poppet valve blowing engine, with improved cut-off governor.

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The Ohio Engineering Co., New England Bldg., Cleveland, has been dissolved, because of the removal of R. G. Beker to Pittsburg to be connected with an important manufacturing company. For the present Mr. Beker's address is 358 Atwood St., Pittsburg.

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Henry L. Coe, 1430 Williamson Bldg., Cleveland, represents McKeefrey & Co. in the sale of pig iron, coal and coke.

# The Pan-American Exposition--VI.

## SOME NOTABLE ENGINEERING EXHIBITS.

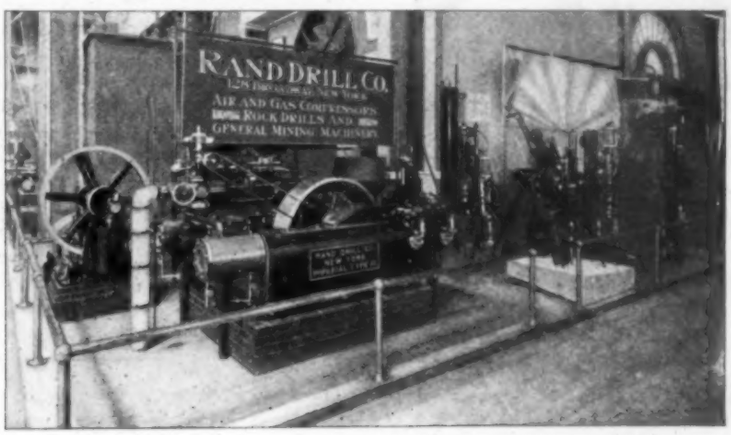
(Staff Correspondence.)

BUFFALO, Sept. 2.—The Rand Drill Co., New York, has an exhibit of rock drills, air compressors and general mining machinery located in the Machinery Building. There is nothing of the lay figure about the collection and the devices shown are in condition to demonstrate their capabilities in actual work. There is an "Imperial" Type X air compressor, having 7x10 duplex steam cylinders and 7½ and 12x10 compound cylinders. The cylinders are overhung so that they are not dependent upon the foundation for support or alignment and any of the pistons may be removed by simply taking off the outer cylinder heads. The Corliss inlet valves are positively driven and ensure a large free opening for the admission of air; the vertical outlet valves are of steel and work on renewable steel seats. These are likely to work more freely than horizontal valves, and do not have a tendency to wear out of line with their seats. The frame is high enough for the flywheel to swing clear of the floor and no foundation above the floor line is required; in the base of the frame is an intercooler consisting of two nests of iron pipe, one on each side, through which the circulating water passes on its way to the air cylinder heads and jackets. The air passes slowly from the low to the high pressure cylinder, due to ample receiver space, and is thoroughly cooled by contact in thin layers with the water pipe. A general system of bath lubrication is applied to the main bearings, crank pins, crosshead slides and eccentric straps. The crank cases contain oil to a depth of one-inch, which covers the lower part of the crank discs. As the crank discs revolve part of the oil is carried to the top, where it is scraped off by copper spouts leading the oil into pockets near the top of the oil shield. Pipes lead the oil from the pockets to all the principal bearings, and after it has been run through the bearings it drains back again to the crank cases, where it is used over and over again. This outfit is under steam and furnishes compressed air to the exhibits of the Chisholm & Moore Co. and the Philadelphia Pneumatic Tool Co., and the speed of the engine being varied according to the demand for air there is an uneven motion of the machine, now fast then slow, following the dictation of the governor that attracts attention and keeps the gentleman in charge busy with explanations.

There is also a 6x6 duplex "Imperial" Type XI belt-driven compressor; having two single-acting vertical cylinders of equal size, fitted with extra long trunk pistons which act as guides for the lower ends of the connecting rods. This does away with stuffing boxes and crossheads, and reduces the height of the machine as well as the number of bearings. The cranks are set opposite to each other so that one piston and one connecting rod are moving downward while the opposite piston and connecting rod are moving upward; one side thus perfectly balances the other. The main bearings are fitted with removable shells made of hard genuine-babbitt metal; when these are worn out they can be easily renewed at slight expense, restoring the original alignment of the machine. There is an automatic unloader applied to this machine which stops the compression of air when the pressure reaches a predetermined limit; as soon as the pressure falls the compression of air begins again automatically, so that air is compressed only as used and no work is wasted beyond the minimum amount necessary to keep the unloaded fly-wheel in motion.

A number of Little Giant, Little Terror and Slugger rock drills are shown mounted on tripods and columns, along with a complete outfit of tools and appliances. One of the drills is erected over a massive rock and coupled up to the compressed air reservoir so that one may witness the action of the tool in dealing with refractory material.

In the exhibit are two special applications of rock drills that had an especial interest to me at least. I have always looked upon the sledge hammer of the shop as a barbarous relic, a legacy of the past that has had its day and that soon shall be relegated to the storehouse of obsolete appliances. Longfellow saw considerable poetry in the swinging of a heavy sledge, but I doubt very much if the spectacle would have appeared to him in just the same way presuming he had had to apply the power in person. Aside from the actual manual labor required by the sledge hammer, there is a certain dexterity essential coupled with the fact that one man is usually limited to the job of striking and the consequent division of labor does not invariably work well under these circumstances. I have recollections of anxious moments spent at the anvil with inexpert assistance that has destroyed whatever regard I ever had for the sledge. The Rand Co. has two tools that might well be termed air-driven sledge hammers, although they are designated by the builders as drift-bolt drivers and post hammers. The drift-bolt drivers are largely used by shipbuilders for driving bolts from one to two inches in diameter, and from two to six feet in length. The post hammer consists of a rock drill attached to a vertical wooden post, and is intended for regular machine shop use, to take the place of a small steam hammer and may of course be employed for driving together parts of machines and similar work.




RAND DRILL CO.'S EXHIBIT.

### The Exhibit of John A. Roebling's Sons Co.

The exhibit is located in the Machinery and Transportation Building, and consists of a tower of the New York and Brooklyn bridge about 40 feet high, which stands against the wall on which a background is painted representing the balance of the bridge and New York City in the distance. A model about 28 ft. long, of the same bridge, is also exhibited. It is carefully worked out to scale and beautifully executed. All of the parts were made and assembled at the works of the Roebling Co. by their own skilled mechanics. This bridge was shown at the Paris Exposition and elicited much praise. It is the second one built for that occasion, the first having been lost at sea on the ill-fated "Pauillac" which it may be remembered, was lost and no trace ever found. In two cases at the front of the exhibit, are placed samples of every variety

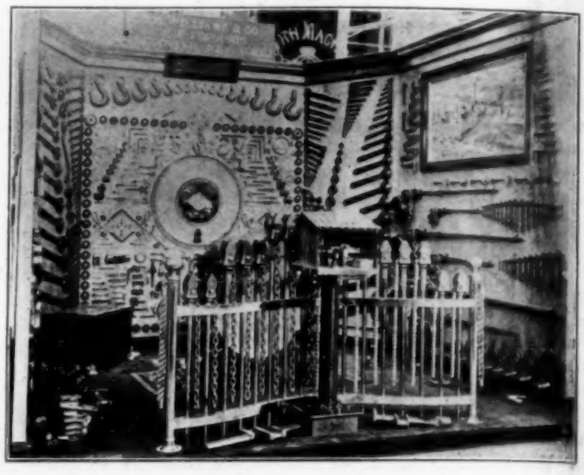
of wire rope and cable for hoisting and transportation purposes and of all kinds of electric power and light conductors, from the finest wire to the largest strand cables with lead casing. As an example of the skill exercised by the workmen of the Roebling Co., some wire is shown which is but 1/1000 of an inch in diameter. It is worth $150,000 per ton. It is about one-half the thickness of the average human hair and is so fine as to be nearly imperceptible when held between the fingers. When a lighted match is applied to it, it burns with beautiful scintillations. The Roebling Co. has the contract for building the cables for the new East River bridge. These are much larger and stronger than those of the Brooklyn bridge and to give a comparison between them, two full size sections of the cables are exhibited on the column one above the other, just below the letter G in the illustration. The new East River bridge cable is about 19 inches in diameter; 4 inches larger in diameter than the Brooklyn bridge cable. The wire is much stronger and the carrying capacity of the bridge will be greatly in excess of the older structure. The Roebling Co. show various coils of wire rope for which they have been so long celebrated and also exhibit the various appliances used in connection with the same. By employing improved methods, the sockets and fastenings for wire rope have been reduced in size and weight, but increased in strength and security considerably over the older styles. The furniture in the enclosure is ingeniously contrived out of wire spools; the empty spools being utilized for rocking chairs and the table is built of various sizes of wire-wound spools. The Roebling

JOHN A. ROEBLING'S SONS CO.'S EXHIBIT.

Co. was the recipient of a grand prize and two gold medals at the Paris Exposition, testifying to the quality of their manufactures.

### A Drop-Forging Exhibit.

The drop-forging exhibit of the J. H. Williams Co., Brooklyn, is arranged with a high degree of skill. The firm manufactures a great variety of forgings and these are tastefully displayed around the space devoted to the exhibition in a manner that does not fail to attract attention. In front is a miniature reproduction of a "smithy" and in back of this is the fence formed of "Vulcan" pipe wrenches, both cable and flat-link chain. On the floor may be seen a couple of crank shafts and along the wall to the right is a series of lathe dogs that will puzzle the uninitiated, in the art of machine-made forging, as to how the work was done. Even more complicated shapes than these are shown; gears and parts of Maxim guns and Savage rifles, with the simpler and more familiar forgings for B. & S. snap gauges and micrometer yokes, horseshoes, machine-tool wrenches of all sizes and shapes, hooks and eyebolts, etc. Some unfamiliar shapes turned out to be parts of surgical instruments and a peculiar combination of stem and disc was destined to be an active member of a cream separator. Part of the exhibit was in Paris, but is mainly original for the exposition here. When one looks over the collection of machine components; bicycle and engine parts, wrenches, etc.,



DROP FORGING EXHIBIT OF THE J. H. WILLIAMS CO.

he cannot but feel that it is hard to set limitations to the process and that the soundness of the product and the uniformity of the work gives it manifest advantages over the ordinary cutting or casting methods.

### The Lunkenheimer Co.'s Exhibit.

One of the most complete and interesting exhibits is that of the Lunkenheimer Co., installed in section 46 in the Machinery and Transportation Building. F. L. Swanberg is in charge. It consists of a complete line of regrinding valves, handy valves, lever throttle valves, pop safety valves, plain whistles, chime whistles, fire alarm whistles, injectors, sight-feed lubricators, oil cups, grease cups, glass cups, glass body oil pumps, in addition to brass valves and fittings for marine work in medium and extra heavy patterns. The headquarters of the Lunkenheimer Co. are in Cincinnati, with branches in New York and London. The specialties of the company were awarded three highest medals at the Paris Exposition last year.

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The large additions to the plant of the Lalance & Grosjean Co., Brooklyn, N. Y., have been completed. The new buildings cover a space of 400x200 feet.

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The taking over of the Shelby Steel Tube Co., Cleveland, by the United States Steel Corporation, has been completed and the following officers have been elected: W. S. Miller, president; H. H. Cockley, secretary; J. W. Phillips, treasurer; A. C. Morse, general superintendent, and J. A. Pannabaker, purchasing agent.

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E. C. Crowther, Hamilton, Canada, has resigned his position as superintendent of the Hamilton Steel & Iron Co. The resignation is to take effect on the appointment of his successor.

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E. O. Gagen has been appointed special representative of the Scherzer Rolling Lift Bridge Co. of Chicago, and will have the duty of extending the business in Russia and Japan.

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Reeves Pulley Co., Columbus, Ind., is building an addition to its iron working department, 112x56 feet. This is being built of brick, one story, with 30-foot section of the center of the roof raised 10 feet, to admit of traveling crane. The building will have concrete floor, and will be occupied by heavy machinery for manufacturing "The Reeves" variable speed transmission in its larger sizes. The company state it has more work ahead in this department than it can possibly complete inside of four months, and an unusually heavy demand has also been felt for pulleys. The company is now building a pulley 16 feet in diameter, and 31-inch face.

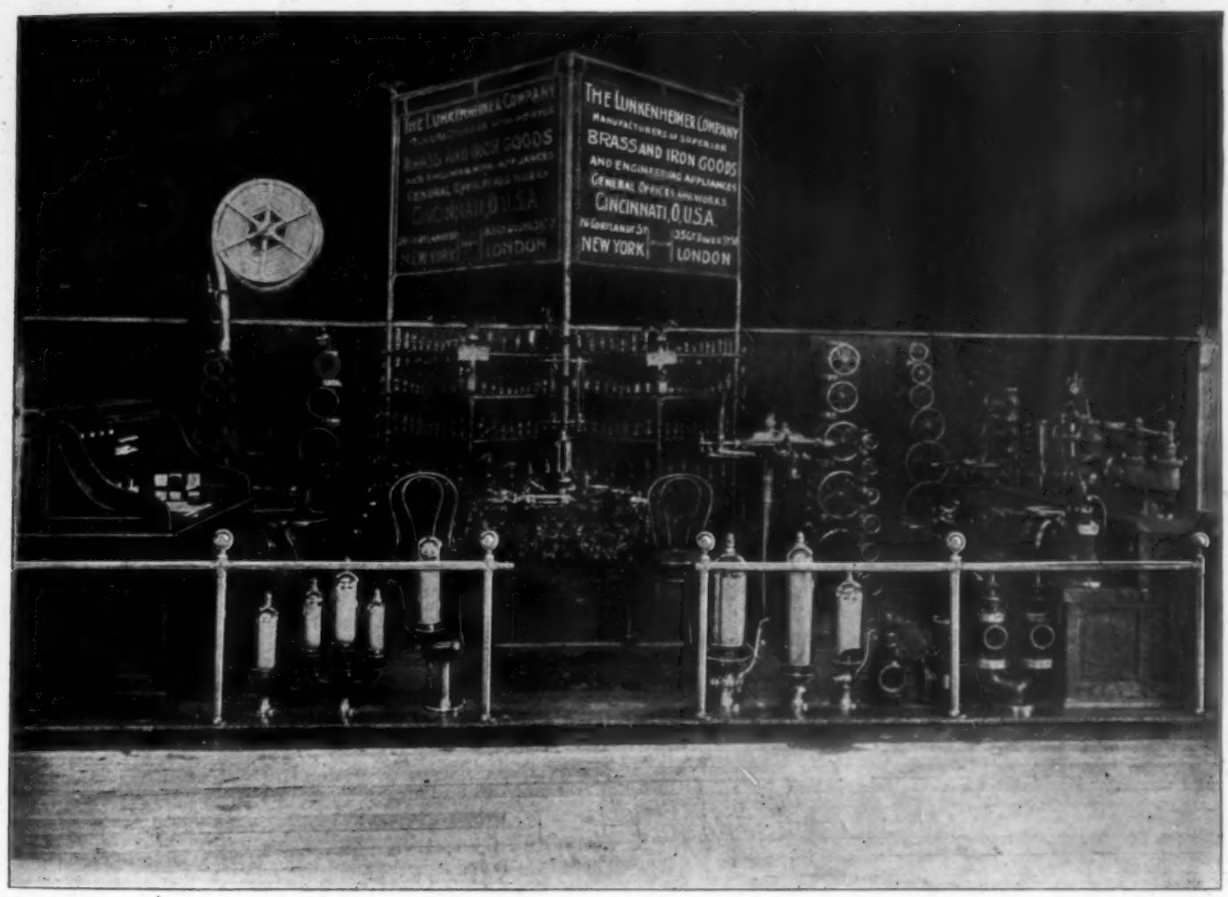
## EXTENSION OF THE SNOQUALMIE FALLS POWER CO.'S INSTALLATION.

Of all water power plants in existence, this hydro-electric installation is probably the most interesting. During the last six months it has been visited by engineers and capitalists from all over the world who testify with high praise to its correct design and the superior excellence of its mechanical operation; with a most varied service that includes electric traction, mill and factory power, as well as ordinary illumination, the entire load of the Snoqualmie system is operated in multiple and with a regulation of less than two per cent variation. The development of this installation is largely due to the business sagacity of the company's president, Mr. Charles H. Baker.

Two years have passed since the first current from Snoqualmie Falls was carried into the cities of Seattle and Tacoma, Washington, and in this short time the initial installation has proven too small. The capacity of the plant is to be enlarged to meet the increasing demand for power in these growing western cities. At the falls, distant 44 miles in an air line from Tacoma and 32 miles from Seattle, are installed in a rock-excavated chamber four generating units, each consisting of a water wheel direct-connected to a 2,000-horse-power Westinghouse three-phase alternator. This famous power transmission system, now generating and distributing 8,000 electrical horse-power, is to be more than doubled in capacity. At the same transmission voltage now employed, 30,000 volts, it is proposed to carry 12,000 horse-power more into the cities above mentioned, making a total output of 20,000 electrical horse-power. The electrical machinery is to be wholly furnished by the Westinghouse Electric & Mfg. Co.

The Abner Doble Co. of San Francisco, which furnished the water-wheel equipment for the initial installation are figuring upon placing their wheels in the new extension; and an engineer of another water wheel concern is likewise looking into the matter. The water wheel contract will not be let for 60 days yet. If an impact wheel is used there will be a single wheel on each end of every generator shaft and each wheel will be driven by a single jet of water 14 inches in diameter; the two jets in combination being sufficient, under the existing head of 270 feet, to give the requisite power. The two water wheels and the generator between, will be built on a single hollow shaft of oil-tempered nickel steel.

The present underground generating station, which is 200 feet long, is to be lengthened out 150 feet up stream to make room for the new installation. A new penstock is to be built which will carry 50 per cent more water than the old one. The transmission line that is to parallel the old line, will require 125 tons of aluminum wire, and the order for it has already been placed. At Tacoma a large and commodious brick and stone sub-station is now being erected. The entire cost of these improvements will be in the neighborhood of $400,000 The work is to be vigorously prosecuted and it is expected that the first of the new generators will be delivering current into Seattle and Tacoma within the next nine months. The generating machinery will consist of three 3,000 k. w. (4,000 horse-power) rotating field generators of the two-bearing type, generating a three-phase current at 1,100 volts and 7,200 alternations. The speed is to be 100 r. p. m. Each generator will require an exciting current of 320 amperes approximately, at 125 volts. For exciting these three generators a 200 k. w., eight-pole, direct-current generator of the two-bearing type is to be used. At 175 r. p. m. it is to deliver under normal load a current of 1,600 amperes at 125 volts.




THE EXHIBIT OF THE LUNKENHEIMER CO.

The current which is generated at 1,100 volts is to be raised to a line potential of 30,000 volts by nine 1,000 k. w. oil-insulated, water-cooled transformers. These are to be delta-connected on both the primary and secondary sides. It is estimated that each transformer will weigh 11,000 pounds and require 500 gallons of oil. The switchboard that is to be installed is to consist of fourteen panels of white marble and is to be of the special type that was furnished for the original installation. Instead of the Niagara type single-phase indicating wattmeter that is in use on the present switchboard a polyphaze long scale indicating wattmeter is to be used. Where formerly a field plug switch was used a double pole field switch is to be employed. The standard equipment of synchronizing lamps is to be replaced by a single pole plug switch mounted on the generating panel and connected to a synchroscope, which will be mounted on the multiplying panel. The increased capacity of the generators will necessitate placing three single pole main switches instead of one three pole main switch. The circuit breakers which are to be non-automatic will be placed on an extension panel above the main instrument panel.

## EXPERIENCE WITH THE TROPENAS PROCESS.

A paper prepared for the American Foundrymen's Association by A. Tropenas, of Paris, and just issued as part of the *Journal* of the association, deals in part with the history of the process and in part with the developments of practice in the United States. As the nature of the process and the claims for it have been covered by previous publications in these columns, we give below some extracts from the paper, which are evidently prompted by the experience of the past two or three years:

Each operation in the converter lasts from 12 to 20 minutes. The time required for pouring the steel into the ladles and preparing the converter for another blow varies according to the style of castings made. Whenever small castings are manufactured and the whole charge has to be poured into hand ladles, 40 minutes is required for a complete operation. When the pouring is done with large ladles only 30 minutes are required. In the first case 10 blows, equivalent to 20 tons of steel, can be made in 7 hours. In the second case 10 blows, equivalent to 20 tons of steel, can be made in 5 hours. One of the foundries using this process recently stated that they had made 11 blows in an average of 25½ minutes per blow, with one 2-ton converter.

The tuyeres used last on an average 30 operations without renewal. With proper care they can be made to last longer. If a large number of operations are carried on at one time, and work is continuous as possible with the same converter, the lining will last longer than with intermittent operations. Usually patching is begun after 20 blows, keeping this up and making about 150 blows before removing the tuyere and setting a new one. The linings are made with silica brick or ganister. The tuyeres are made in blocks of practically the same material as the lining.

The cost of producing steel varies with the price of raw materials, the output, and the foundry appliances. One can, therefore, only give a rough estimate based upon the practical experience of modern foundries. If the price of pig iron is $17, the waste being estimated at 17 per cent, the cost of the steel will be: $17 divided by 83, plus proportional expenses of all other material, plus labor charges. The proportional expenses include all raw materials used in the production of the steel, coke, ferro's, bricks, chemicals, etc. The labor includes that at the cupola and the converter, the chemist, etc. For an output of from 300 to 400 tons of steel per month, necessitating 3 two-ton converters, labor and raw material taken at present prices, the proportional expenses alone will be about $4.70 per ton and the labor $1.80 per ton. Total cost will be about $17 divided by 83 plus $4.70 plus $1.80; or $26.98 per ton.

For an output of 200 to 300 tons of steel per month the total cost would be $17 divided by 83 plus $4.75 plus $2.45; or $27.68 per ton. For an output of 100 to 200 tons per month, necessitating two two-ton converters, it would be $17 divided by 83 plus $4.75 plus $3.57 equals $28.80 per ton. For an output of 70 to 100 tons of steel per month, necessitating one two-ton converter, the cost would be $17 divided by 83 plus $4.80 plus $6.20 equals $31.48 per ton. It is impossible to figure how much the steel would cost for a smaller output because the labor would become too uncertain a factor.

Fifty thousand tons of steel castings per annum are now produced by the Tropenas process, and the marked favor with which they have been received everywhere shows that they give satisfaction and are successfully meeting all the requirements of the trade. The castings of ordinary soft quality weld as well as the best soft steels. If it is admitted that wrought steel, which after welding, still has 70 per cent. of its original tensile strength, is considered excellent, the two appended tests show that this steel is of very fair quality:

| | Elastic limit. | Ultimate Strength. | Per cent Elongation. | Per cent Reduction in area. |
|---|---|---|---|---|
| Unannealed | 30,060 | 56,550 | 21.00 | 22.29 |
| Cut and welded | 37,360 | 58,947 | 11.00 | 30.60 |
| Forged | 36,330 | 64,445 | 33.00 | 50.70 |
| Annealed | 32,200 | 69,000 | 32.50 | 44.20 |
| Forged | 46,850 | 79,750 | 24.00 | 51.10 |
| Cut and welded | 45,250 | 63,700 | 5.00 | 2.60 |

The Tropenas process now introduced in this country has proved to be all that was claimed for it, 9 plants are in operation here and contracts for two others placed, one of which is almost completed. There seems to be a great future before the process in the manufacture of specialties for which it is particularly well adapted. There has been considerable controversy as to the quality of Tropenas steel. Some people say that it was as brittle as cast iron; others that it was the best steel they ever saw. Those who understand the manufacture of steel castings will be able to judge best. With the best material it is possible to make the worst product, if not manipulated properly. It is very encouraging, however, to note how seldom raw material is spoiled in the handling even by men of very little experience. Failures have happened no oftener in this process than in any other, even in those in which operators have had much more experience.

The steel molder has been accustomed to see the steel castings come out of the sand pretty rough. This is due to the physical or chemical action of the metal upon the face of the mold and also from the fact that molds are often prepared with a rough surface. If hot steel is poured into a smooth mold, gated properly, and made with sand of the right quality, there is no reason why the castings should not come out nearly as smooth as a gray iron casting.

The steel should not be poured too hot because the shrinkage will be necessarily greater and the chances are that the casting may be spoiled through shrink holes or pulling apart. It is an easy matter to get steel cold enough, so that whenever a casting is spoiled on account of being poured too hot it is the fault of the men who cast. This is sometimes the case in plants when the men have no experience with Bessemer steel, and it is probably the reason why the open-hearth men get the poorest results with this steel at the beginning. Uusally the open-hearth men pour the steel, when using that process, into the mold whether hot or cold, for they cannot ascertain its state before pouring on account of using bottom pouring ladles. Moreover the amount of metal to be distributed in one heat is so great that the pouring must proceed without delay in order to get the steel out of the ladles before it chills.

Tropenas steel foundries, on account of the amount of steel handled at one time, and the way in which it is manipulated, are comparable to iron foundries. We see the surface of the steel before pouring and can tell whether it is fit or not to go into a mold. With a good foundry equipment and men handled properly the best castings can be made.

In conclusion reference is again made to the special suitability of this steel for electrical purposes. There is no process known which makes dynamo and general electric castings so satisfactorily. It is very easy to make them with the closest regularity. The chemical analysis of this steel is approximately: Silicon, 0.04 per cent; Manganese, Trace; Carbon, 0.00. Sulphur and Phosphorus according to the quality of the raw material.

The total iron in this material is from 99.70 per cent. to 99.80 per cent, that is to say it is practically wrought iron, free from slag. To produce this material in a manner enabling it to be handled and poured into the molds requires an exceedingly high temperature. Large quantities of magnet steel castings are now made in this country, and it is hoped that Electrical Engineers will soon appreciate the advantages offered by this method.

This process recommends itself especially to cast and malleable iron founders, who may wish to substitute steel for these metals, as it only requires an additional installation of a converter and its accessories, at a cost not excessive. That the tendency of the trade is to substitute steel for cast iron in some measure will not be denied as with a slight additional cost a metal can be made which will offer a superior strength not obtainable by cast or malleable iron. Moreover steel being so much stronger castings can be made much lighter and cost but little more owing to the reduced weight. From the fact that a sound steel is obtained the machinist is saved such labor as is expended in machining castings which oftentimes do not show their blow holes and defects until after much money has been lost.

This process, unlike the open-hearth, permits intermittent operations, as the heating of the converter is cheaply accomplished. According to the demands of the market the foundryman can work his converter continuously, or he may discontinue its use until he has again gathered a sufficient number of molds to warrant him to fire again, exactly in the same conditions as melting with a cupola. In casting, owing to the great fluidity of the metal, but very small headers or risers are required.

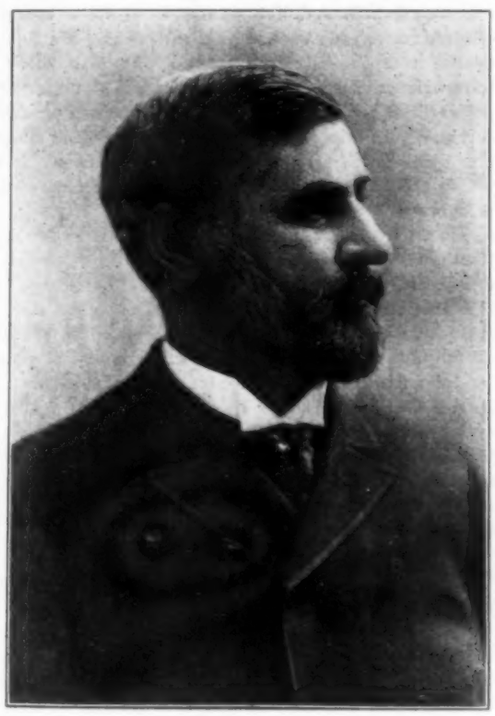
## OBITUARY.

### The Late Lloyd Booth.

Brief mention was made in our issue of last week of the death of Lloyd Booth, of Youngstown, one of the best known of Central Western manufacturers. He had been ill for several days and his malady rather suddenly took a critical turn. Though not in the best health for two or three years, he had given part of his time to the business which latterly was in charge of his son, Chas. H. Booth. The Lloyd Booth Co., incorporated several years ago, had one of the largest foundries in the Central West, and the establishment had long made a specialty of chilled rolls and rolling mill machinery. A short time ago, it was merged in the United Engineering & Foundry Co., of which Lloyd Booth was a director and Chas. H. Booth an officer.

Lloyd Booth was born near Albany, N. Y., in 1834. He entered the employ of Emery Bros., operating a machine shop at Albany, when a young man. He had a bent toward mechanics and soon became an expert machinist, holding positions at Buffalo, N. Y., and Scranton, Pa. Later he went South as a locomotive engineer and lived at Knoxville, Tenn. On the breaking out of the war he returned to the North and worked first at Susquehanna, Pa. At Meadville, Pa., the firm of Dick, Fiske, & Co., machinists, was organized, with Mr. Booth as a member. About 1870 he went to Youngstown and the firm of Booth & Margerum was formed, which later became Booth & Miller, a machine shop and foundry business being carried on. Mr. Booth in time assumed control of the business and built up a large engineering and foundry establishment.

Mr. Booth was a large employer of labor and though his business interests grew steadily he never lost the personal interest in the welfare of his workmen individually that was characteristic of him in earlier days, before corporations had brought the estrangements that too often exist now. When



LLOYD BOOTH.

the news of his death came to the Lloyd Booth shops the men stopped work as a mark of respect for a man whom they held in no ordinary esteem.

### Death of John J. Wagoner.

John Jacob Wagoner, of the firm of Fieser, Wagoner & Bentley, Columbus, O., died at his residence, 4549 Greenwood Ave., Chicago, Sunday, Sept. 1, from heart disease. Funeral services were held at the home of the deceased Monday evening, the body being taken to Cincinnati, O., for interment at Spring Row cemetery. Mr. Wagoner was born in Cincinnati, 1848, where he was educated, and resided there until five years ago, when he removed to Chicago to take charge of the branch office in that city of the firm of which he was a member. His first employment was with Dickson, Clark & Co., wholesale hardware dealers, of Cincinnati, with whom he remained for a number of years. He severed his connection with this firm to enter the pig iron business by becoming a salesman for Rogers, Brown & Co., with headquarters at Cincinnati. He later became a partner in the firm of Miller, Wagoner & Bentley, of Columbus, O., and having secured the agency in Chicago and territory of the entire output of the

JOHN J. WAGONER.

Sheffield Coal, Iron & Steel Co., opened an office in that city. He subsequently secured the agency in the same territory of the "Sloss" and "Sheffield" brands of iron, made by the Sloss-Sheffield Steel & Iron Co., Birmingham, Ala. It was while traveling in the south in the interest of his company, that he laid the foundation for the disease which resulted in his death.

William S. Sizer, of Buffalo, a well known manufacturer of iron and steel forgings, died in that city Sept. 1, aged 58 years.

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The Pittsburg Steel Construction Co., Pittsburg, Pa., has purchased a building and site, 80x125 feet, on Beaver Ave., Allegheny, in which they will carry a stock of structural material consisting of beams, channels, angles and corrugated iron. Cold saws, punches and shears will be installed for preparing the material for any kind of work required. In addition the company will do expert structural steel engineering. The plant is located on the West Penn railroad and has excellent shipping facilities. The office of George M. Bole, president of the company will be located at the plant while the office of the vice-president will be located on the tenth floor of the Park Building.

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Furnaces No. 1 and No. 2 of the Carrie group of the Carnegie Steel Co., located at Rankin, Pa., which were recently torn down, and are at present under course of reconstruction will be completed within the next two months. One of these furnaces will be blown in in October, while the other will be completed in November. These furnaces have the same dimensions as the other two furnaces of this group recently completed. When these two stacks are completed the furnace plant will have a daily output of about 2,500 tons. The iron made at these furnaces will be converted into steel at the Homestead Steel Works, the iron being conveyed to the steel furnaces in ladles over the newly completed hot metal bridge.

## CHAIN WORKERS' STRIKE.

PITTSBURG, Sept. 4.—A strike of the chain makers affiliated with the National Chain Makers' Union was declared this week, owing to the refusal of the Standard Chain Co. and the independent manufacturers of chain to agree to their demands made on Aug. 20. The strike order, however, was not generally obeyed by the men affiliated with this union, less than one-third of the plants of the Standard Chain Co. being affected. No lodge was formed among the men employed in the chain department of Jones & Laughlins, Ltd., Pittsburg, Pa., and therefore this plant is unaffected. The McKay plant, located at Pittsburg, is shut down, as the management has concluded that this is an opportune time to remove its machinery to its new plant located at McKees Rocks. The men have been informed that they can return to work at the new plant when the machinery installations are completed, under the old scale of wages, but not otherwise. The plant of the Pittsburg Chain Co. and the Chilcott-Evans Chain plant, located respectively in Pittsburg and Allegheny, Pa., are only in partial operation.

The Eastern plants of the Standard Chain Co. have felt the effects of the strike more severely than the Western plants, but the officials of the company declare that under no conditions will they grant the demands of the men and will replace the strikers with new men as speedily as possible.

The advances asked by the men range from 10 to 40 per cent and are so outrageous that it would be ruinous for the manufacturers to grant them. Less than two years ago when the chain manufacturers were selling their product at almost cost price, the chain workers were not asked to stand a reduction in wages nor was one made. Upon the formation of the Standard Chain Co. an advance was granted the men. When the union was formed a convention was held in Pittsburg at which the new scale was formulated. The manufacturers were not asked into conference to consider the scale, but upon its adoption by the workers arbitrary demands were made that it be signed or a strike would be declared. The men were informed that the scale would not be signed, whereupon they informed the manufacturers that a strike would be declared.

One of the officials of the Standard Chain Co. reviewed the situation as follows: "The men would not listen to argument when the scale was presented, but arbitrarily demanded that it be signed. They evidently do not take into consideration the fact that we have contracts running to the first of the year made on a basis of lower wages than their new scale and to grant their demands would mean a loss to us on all those contracts. In addition they do not seem to appreciate the fact that competition in the chain business is keen and that in order to keep our plants in operation we are compelled to figure close on all contracts in order to secure our share of the business and to keep the plants in operation. It is to the advantage of the men as well as to our interests to keep our plants in full operation at all times and such arbitrary demands would in a short time result in the closing of our plants, the business going to others who are not compelled to pay such high wages by labor organizations. We do not intend to sign the scale and will fight it out if we have to break green hands into the business.

### Bibliography.

Hand book of practical mechanics for use in the shop and draughting room, containing tables, rules and formulas. By Charles H. Saunders, Ph. B. Published by the author at 216 Purchase St., Boston, Mass. Size 4x6¼, 240 pages. Price, cloth, $1; leather covers with flap, $1.25, postpaid.

This is the second edition of a useful shop manual that originally appeared in 1894. During the intervening years the author has profited by the suggestions made by his readers and has incorporated additional tables and rules to make the book more complete and yet preserve the condensed form which commends the publication for constant service in the shop and draughting room. Care has been taken to simplify the rules and formulas in order to facilitate the work in calculations. Lathe thread cutting, cams, bevel and worm gears, standard keys, bolts, tapping drills, the metric system, speed of pulleys, tapers and angles, etc., receive considerable attention and many valuable recipes and kinks are included in the text. The book is equipped with a comprehensive index covering some 30 pages in itself and the work is on this account of much greater convenience to the busy workman.

# INDUSTRIAL SUMMARY.

[If you are in need of machinery of any description, please notify *The Iron Trade Review*, and we will put you in communication with our advertisers at once.]

### New Buyers in the Market and Some of their Wants:—

At the last annual meeting of the Hartford Foundry Co., Hartford, Conn., it was decided to increase the capital stock to $100,000. The company's foundry will be increased to 300 x 75 feet, to be equipped with the latest compressed air and electrical machinery and to include the necessary core, shipping and pattern departments. The officers are: Theodore M. Lincoln, president; J. W. Conway, vice-president and superintendent; Ernest H. Cady, secretary and treasurer; J. G. Bulkley, assistant treasurer.

The Midvale Steel Co., Philadelphia, Pa., are asking for bids for the erection of a hammer shop 123 x 144 feet, to be built of brick and iron.

The Montana Iron Works, of Butte, Montana, was incorporated last week with a capital of $24,000. T. P. Newton, J. J. Egan, A. E. Hook and C. J. Ashton are the incorporators.

The F. E. Ranier Machine Co. of Chicago, Ill., has been incorporated with a capital of $5,000. John C. Stetson, J. M. Miller and C. Van Allen Smith are the incorporators. The new company will do a general machinery manufacturing business.

Bingham Lubricator Co., Chicago, has been incorporated with a capital stock of $10,000 to manufacture lubricators and lubricating devices. The incorporators are George J. Bingham, Samuel W. McMunn and Edward R. Woodle.

The Semi-Steel Co. of Chagrin Falls, O., was recently incorporated with a capital of $25,000. The officers are F. B. Squire, president; G. W. Balkwill, vice-president and manager; W. C. Bruce, treasurer; Howard E. Cole, secretary. The company has purchased the plant of the Ferro-Steel Co. of Chagrin Falls, O. It will make a specialty of brake shoes, street car equipment and light castings. Quite a number of large orders are already booked. Of the officers, Mr. Squire is vice-president of the Standard Oil Co., Mr. Balkwill is mechanical engineer of the Bowler Foundry Co., and Mr. Bruce is president and general manager of the Bowler Foundry Co. of Cleveland, O. Mr. Cole is connected with the Standard Oil Co. Paul Tafel, also a director of the company, is chief chemist of the Frasch Process Soda Co. The new company begins operations under favorable auspices.

The Chas. Taylor's Sons Co. of Cincinnati is in the market for three miles of re-laying T rails, from 16 to 25 pounds.

On Sept. 23, application for a charter of the Sharon Sheet Steel Co. of Sharon, Pa., will be made. The capital stock will amount to $600,000. As previously announced in these columns a ten-mill sheet plant will be erected. The incorporators will be John Stevenson, Jr., N. McConnell, D. Adams, J. P. Whitla and George W. Darr. This will be one of the identified companies of the Sharon Steel Co.

The Lancaster Boiler Works has been incorporated at East Orange, N. J., with a capital of $250,000. The new company will manufacture boilers. James R. Mapletoft, Frank C. Ferguson and R. N. Smith are the incorporators.

The Eastern Bolt & Nut Co. of Providence, R. I., has been incorporated with a capital of $100,000. A plant for the manufacture of nuts, bolts and rivets will be erected at East Providence, provided a suitable site can be secured. Edwin A. Smith, Lincoln Davis and George G. Bell are the incorporators. Mr. Smith has been elected president; Mr. Davis, vice-president and general manager, and George G. Bell, secretary and treasurer.

The Alton Mfg. Co. of Toledo, O., has been incorporated with a capital stock of $10,000. The new company will manufacture metal toys and machinery. W. T. Golding, C. V. Wagner, L. M. Wilkinson, W. E. Allen and E. Schaefer are the incorporators.

The American Steel Refining Co. has been incorporated with a capital stock of $100,000. The new company will erect a plant near Hamilton, O. Charles Mueller and Frank Gibson, of Hamilton, O., and George W. Stark, George J. Fitzgerald and Charles Kuck, of Cincinnati, are the incorporators.

The Washington Foundry Co. of Spokane, Wash., has been incorporated with a capital of $5,000. The new company will manufacture stoves and ranges and metal household utensils.

The incorporators are Samuel Katzenstein, Arthur J. Katzenstein, Thomas Caufeeld and Ellsworth Caufeeld. A foundry building 50x60 feet will be erected immediately.

The Conneaut Can Co. of Conneaut, O., has been incorporated with a capital of $50,000. Z. H. Thompson, H. A. Truesdell, O. C. Lillie, A. J. Packerd and A. C. Andrews are the incorporators. A tin can and stamping plant will be erected immediately.

At a meeting of the stockholders of the Central Iron & Steel Co. of Harrisburg, Pa., held last week it was decided to increase the capital stock from $1,000,000 to $5,000,000. The money realized on the sale of additional stock will be used in the erection of an open-hearth plant and additional rolling mills.

The Hawkins Iron Co. of New York has been incorporated with a capital stock of $50,000. George E. Hawkins, Robert T. Brooks and Henry S. Starr, Jr., are the incorporators.

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**Fires and Accidents:—**

Several men were severely injured by the caving of the sides of an open-hearth furnace at the plant of the Tidewater Steel Co., Chester, Pa., last week.

The machine shop operated by James Christian at Crowley, La., was damaged to the extent of $3,000 by fire last week.

A recent fire did $10,000 worth of damage to the plant of the Industrial Foundry Co. at Cincinnati, O.

The foundry and machine shop of the Milwaukee Valve Co. of Milwaukee, Wis., were totally destroyed by fire last week, with a loss of $20,000.

Holt & Ellis's machine shop at Shelbyville, Tenn., was destroyed by fire recently, loss, $1,000.

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**New Construction:—**

From Manchester, Eng., it is reported that operations looking toward the early completion of the British Westinghouse plant are being pushed by Pittsburg contractors. Foundations for nearly all the buildings have already been laid and the structural workers are already on the ground. There are six buildings arranged side by side so that the material can be carried from one to another as its manufacture into the finished product progresses. The foundry will be 580 by 170 feet. This building will contain also the brass foundry, malleable iron foundry, pattern shop and forge. The machine shop will be the largest ever erected in England. It will be 900 feet long and 430 feet wide. There will also be an office building, box factory, storehouse and power plant. The Trafford Park Dwelling Co., Ltd., has been organized by the stockholders of the company for the purpose of providing dwellings for the men to be employed in the plant. The present plans provide for the erection of 2,500 dwellings.

Wickwire Bros. of Cortland, N. Y., will build an addition to their wire plant, 300x90 feet.

The S. Freeman & Sons Mfg. Co. of Racine, Wis., will erect a large addition to the present plant. The company makes a specialty of boilers for all purposes.

The Newport Rolling Mill Co., Newport, Ky., has placed an order with the Lane & Bodley Co. for a large Corliss engine to be installed in the concern as soon as it can be built. The engine will be 38 inches in bore of cylinder with a 72-inch stroke. The wheel will be 30 feet in diameter and the whole will weigh 140,000 pounds. This is the fourth engine of the same size to be put in by this concern recently

The Black-Pollak Iron Co. is building a new machine shop at Steelton, near Carthage, Cincinnati, that will be a companion to the one now in use by that concern. The new building will be of brick and steel construction, 95x140 feet, and will be equipped with heavy lathes, planers and other heavy machinery. The boilers will be two of 150-h. p. each and the shop will have a 40-ton electric traveling crane.

The Laidlaw-Dunn-Gordon Co., Cincinnati, branch of the International Steam Pump Co., is building a new foundry that is to have a capacity of 25 tons a day. The building is 100 x200 feet and will be equipped for heavy work. There will by an overhead electric crane with a 50 foot span outside with a capacity of 10 tons and one on the inside with a capacity of 20 tons. This concern, or to be exact, the Holly Mfg. Co., another branch of the same company, was awarded the contract for the second pumping station in the new Cincinnati water works system.

The Ohio Falls Iron Co. will soon add to its present outfit at New Albany, Ind., five sheet mills and one large fire bed mill. The head of this company is George M. Clark, formerly the head of the Mitchell & Tranter Co., that sold out its Covington mill and Cincinnati business to the Republic Iron & Steel Co.

New equipment is being installed in the addition recently built to the plant of the Cincinnati Planer Co., Cincinnati, O. This includes several planers of the company's own make, a 36-inch automatic gear cutter, a universal grinding machine, a horizontal boring and drilling machine, a special turret machine, a radial drill, a milling machine and several engine lathes.

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**The Pittsburg District:—**

A company has been organized in Pittsburg with a capital of $75,000 to erect a plant at New Castle, Pa., for the manufacture of steel bars, light rails and shapes. A site of 10 acres has been purchased at New Castle adjoining the tin plate plant of the American Tin Plate Co. There will be shipping facilities over all roads entering New Castle. It has been decided to erect 12-inch, 16-inch and 20-inch mills. One of the members of the firm of J. H. Silberman & Co. of Cleveland, O., will be elected president of the company; A. F. Baumgarten of Pittsburg will be general manager and the treasurer will be elected by New Castle stockholders. Machinery for the plant is being purchased by A. F. Baumgarten with offices at 518 Park building.

The Damascus Bronze Co. of Allegheny is making additions that will increase the output of the plant fully 40 per cent. Several new furnaces are being added.

The new plant of the Fort Pitt Forge Co., Liberty Ave., near 26th St., has been completed, and the installation of machinery has already begun. The plant will be placed in operation in about two weeks.

The Pittsburg Pattern Co. of Pittsburg has been incorporated under New Jersey laws with a capital of $5,000.

The McKeesport Mfg. Co. of McKeesport, Pa., has been organized and an application for a charter will be made on Sept. 24. The incorporators of the company at present refuse to state the nature of the plant that will be erected, but admit that iron and steel products will be manufactured. John W. Painter, E. P. Douglass, Dr. T. F. Mason, Dr. J W. Fawcett and P. C. Smith are the incorporators.

The Alcania Co. of Pittsburg has been incorporated with a capital stock of $250,000. The company at present is operating a two-mill tinplate plant at Avonmore, Pa., but the size of the plant is to be greatly increased by the addition of a number of hot mills. The incorporators are W. H. R. Hilliard, A. O. Fording, W. C. Weichsel, Mahlon M. Garland and Oliver Wylie.

The Secretary of War has been petitioned by the Carnegie Steel Co., the Mesta Machine Co. and the Harbison & Walker Brick Co., whose plants are located on the banks of the Monongahela river at Homestead and West Homestead, for a change in the harbor line on the south side of the river. The petitioners ask for permission to extend the shore line out into the river 200 feet, in order that further extensions can be made to their respective plants. The length of the extension would be three miles. Rivermen generally are disposed to oppose the granting of this request.

The plant of the Wisconsin Graphite Co., located in Allegheny, which was recently destroyed by fire, will be rebuilt immediately. Contracts for the erection of a new building were let last week. The structure will be two stories high.

The plant of the Atlantic Tube Co., near Beaver Falls, Pa., will be placed in operation shortly. It was recently sold by order of the court.

The St. Clair Steel Co. has decided to erect an office building at Clairton, Pa., at an estimated cost of $20,000. The contract for the new pumping house and intake on the Monongahela river at Clairton was let last week. The cost of the building will be $100,000.

The American Bridge Co. has been awarded the contract for the erection of the new sheet plant of the Sharon Sheet Steel Co. at South Sharon, Pa. Mackintosh, Hemphill & Co. of

Pittsburg have been awarded the contracts for the construction of the ten sheet mills.

The Pittsburg Steel Co. has already awarded contracts for the erection of the buildings of its immense plant. The buildings are 18 in number and work on two of them has already been commenced.

The new structural shop of Heyl & Patterson at Allegheny is nearly completed and the structural department now located on Water St. will be removed to the new shop the latter part of September. The shop is 200 feet long and 90 feet wide. The portion of the Water St. plant now given over to the structural department will be used in enlarging the machine shop.

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**The West and Northwest:—**

Kitselman Bros., Muncie, Ind., expect to open their wire and nail mill Oct. 15. It is reported that 400 men will be employed.

The Pioneer Implement Co., Council Bluffs, Ia., has been incorporated with a capital stock of $100,000. The incorporators are Albert Hirshheimer, president of the LaCrosse Plow Co., LaCrosse, Wis.; Fred R. Davis, J. P. Davis, T. S. Davis and J. D. Edmundson.

The Davis & Ludwig Foundry Co., of Chicago, has secured some large contracts for heavy iron castings. Among these is the contract for castings to equip the large forge plant of the American Engineering Works, consisting of the 800, 1,500 and 3,000-pound steam hammers, as well as large power hammers and furnace castings. The latter are very large and will run up into a heavy tonnage. The company further reports a bright prospect for the coming season, having orders and contracts for work two months in advance.

The Sargent Co., Chicago, Ill., is having plans prepared for an additional pattern shop to be erected at its plant at Chicago Heights, Ill.

The Charter Gas Engine Co., Sterling, Ill., report an excellent demand for its engines, and state that the erection of additional buildings either this winter or next spring will be necessary.

George W. Scott, consulting engineer, has opened an office at 616 The Rookery, Chicago, with the intention of doing a general engineering practice, with particular reference to the following subjects: Examinations, valuations and reports of properties, investigation and development of mechanical undertakings; arrangement, construction and equipment of power plants; railroad and car shops, mills, works and factories, etc.

The Charles A. Stickney Co., Inc., of St. Paul, Minn., manufacturer of gas and gasoline engines, has opened a Chicago office, at 445 Marquette Building, which is in charge of R. J. Randolph, vice-president of the company.

The Christensen Engineering Co., Milwaukee, Wis., is erecting a $100,000 addition to its plant. The building will be 186x250 feet, ground measurement, and three stories high.

The L. K. Hirsch Co., Chicago, Ill., has been incorporated with a capital stock of $100,000. This company deals in scrap iron and has offices in The Rookery. L. K. Hirsch, is president; K. Kaufman, secretary; M. K. Frank, treasurer, and D. Kaufman, vice-president and superintendent.

The Dixie Reversible Plow Co. is reported to have been organized at Chattanooga, Tenn., where the promoters have leased ground on which to erect a factory.

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**General Industrial Notes:—**

The South Chester Pipe & Tube Co. of Chester, Pa., is now rolling pipe up to 12 inches in diameter. Heretofore the largest pipe rolled was 10 inches in diameter.

The motion for the appointment of a receiver of the Danielson Machine & Tool Co. of Cleveland, O., made recently by one of the stockholders, alleging mismanagement, has been overruled by the court and the officers of the company were vindicated of the charges made against them.

The plant of the Corliss Steam Engine Co., Providence, R. I., will be sold by order of the court on Sept. 14. The plant is to be sold to satisfy a judgment held against the property amounting to only $2,000.

The American Brass Co., with headquarters at Waterbury, Conn., has secured control of the Holmes, Booth & Haydens Co., of Boston, Mass. The combination has a capital stock of $10,000,000, of which $8,000,000 is outstanding. The constituent companies comprising the combination are as follows: Coe Brass Co., Torrington, Conn.; Ansonia Brass & Copper Co., Ansonia, Conn.; Benedict & Burnham Mfg. Co., Waterbury, Conn.; Waterbury Brass Co., Waterbury, Conn.; Chicago Brass Co., Kenosha, Wis.

The Carnahan Tin Plate & Sheet Co. of Canton, O., has advised the trade that six mills will be placed in operation about Nov. 1. The company will manufacture high grade iron and terne plates and sheet steel.

Last week the White Sewing Machine Co., Cleveland, purchased from the National Lead Works a portion of their property, the consideration on record being $20,000. The lot extends 260 feet along Canal St. and 279 feet on Champlain St. and adjoins the sewing machine company's plant. The White Co. has plans for a fine seven-story brick structure to be erected there in the spring, that will be a model as a factory building. The lot is large and in addition to the building with a floor space of 90,000 square feet, there will probably be a small park plotted for the adornment of the place and to provide a spot of natural beauty for the recreation of employes during rest hours. The building will be used largely for the automobile department, the present quarters being too cramped.

The United Brass Mfg. Co., Cleveland, will erect a brick boiler house and store room on Hamilton St. at an estimated cost of $800.

The Cleveland City Railway Co. will have a new brick shop on Wellington and Theodore Aves. at an expense of $7,800.

It is reported from Cambridge, O., that A. W. Brown and W. P. Deval, who were formerly connected with the Cambridge Iron & Steel Co. before this was taken over by the American Sheet Steel Co., have purchased a large site of land at that city and intend erecting a sheet mill thereon.

The new furnace No. 4 of the Roan Iron Co., Rockwood, Tenn., has been blown in. It has a capacity of 175 tons per day, and is the first one in the South to be equipped with the Kennedy skip. All stock from bins to skip are handled by a Hunt cable railway.

The citizens of Meyersdale, Pa., propose to issue bonds to the extent of $15,000, which, in addition to 6 acres of land, will be held out as a bonus to a company which will erect a tin plate mill at that point.

Some large shipments of wire nails have recently been made by the Belfont Iron Works Co. of Ironton, O. In one week recently over 10,000 kegs of wire nails were made, the shipments aggregating 10,862 kegs, to which should be added other shipments of cut nails, galvanized and annealed wire.

The Akron Engineering Co. of Akron, O., originally incorporated under West Virginia laws, has been re-incorporated in Ohio with a capital of $50,000. The company carries on a general foundry and machine shop business, and the new move will not make any change in either the business or the personnel of the officers.

Wm. T. West & Co. of Rowlandsville, Md., are converting the old rolling mill at that point, formerly operated by the McCullough Iron Co., into a machine shop and tank works.

The White Rock (Va.) furnace of the Lobdell Car Wheel Co., Wilmington, Del., has been blown in.

The Richmond Mfg. Co. of Richmond, Ind., will enlarge its plant.

The capital stock of the Central Iron & Steel Co. at Harrisburg, Pa., will be increased to $4,000,000. It has been decided to increase the plant by the addition of a 6-pot furnace.

The Alamo Gas Engine Co. of Saginaw, Mich., has purchased the plant and good will of the Olds & Hough Gasoline Engine Co. of Albion, Mich.

C. E. Breckons last week purchased for F. H. Clement and others the Schuylkill Haven Iron Works, located at Pottsville, Pa. The price paid for the plant was $19,000.

The plant of the National Rolling Mill Co. at Hartford City, Ind., will be placed in operation in about three weeks.

Agricultural implement manufacturers, in session at the Auditorium, Chicago, last week, decided upon a 10 per cent increase in the price of plows and plow repairs during the coming year. The present strike of the steel workers causing a scarcity of material, is given as one cause for the rise in prices, and in addition, the manufacturers claim that the cost of production in every way is much greater than it was a year ago.

## THE COCHRANE SEPARATORS.

Side Section.

*Someone once parodied that good old saying, "A rose, by any other name, would smell as sweet," by changing it into "A rose, by any other name, would cost as much."*

A **COCHRANE SEPARATOR**, under any other name, would be just as efficient, and would cost as much as it does at present, for taken in comparison with other Separators, their selling prices are most reasonable.

The service the "**COCHRANE**" renders is, however, out of all proportion to the selling price. In the matter of taking oil out of exhaust steam, if good separation could be obtained at no other cost, it would still pay the steam user to invest ten times the cost of a Cochrane Separator to be able to use his condensed exhaust for boiler feed and other purposes, thereby saving this pure water and its heat as well.

In the matter of taking water out of live steam, the interest on the money invested in a Cochrane Separator is a very small premium to pay for first class insurance to engines, and this interest charge, by the way, would probably be made up by the greater efficiency given by the engine through working with dry steam.

The dollars and cents side of it is only one part. First, the service must be obtained at almost any cost. This the **COCHRANE SEPARATORS** will give you.

When you consider the price end of it, just remember that low prices are made to move goods that will not sell at the regular prices, because of the strong competition of better goods.

**HARRISON SAFETY BOILER WORKS,**

**Clearfield & 17th Sts., PHILADELPHIA, PA.**

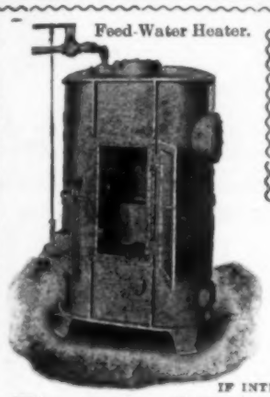
## ANNOUNCEMENT.

**In addition to our already large line, we are prepared to furnish 20-in. and 36-in. Engine Lathes. The 36-in. Lathe is made either back or triple geared. Both these tools are of new design and contain many new and valuable features not found in lathes of other makes.**

**If you are interested, we will be glad to furnish full particulars.**

**SCHUMACHER & BOYE, Cincinnati, Ohio.**

Feed-Water Heater.



## Feed Water Heaters

Cut herewith illustrates Stilwell's latest design. **Made entirely of cast iron.** Saves fuel and filters the feed water for steam boilers. Use only exhaust steam.

## BOILER FEED PUMPS

Single, Duplex and Triplex.

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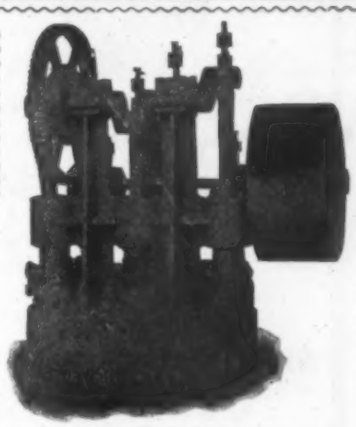

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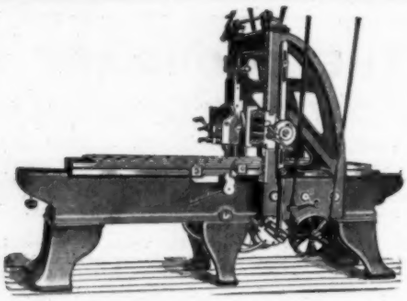

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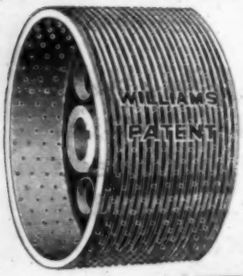


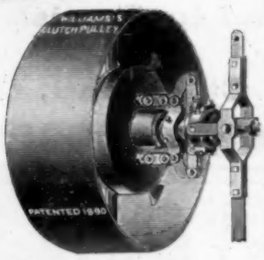


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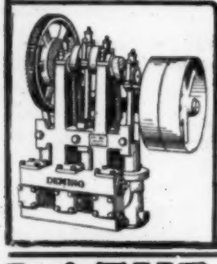

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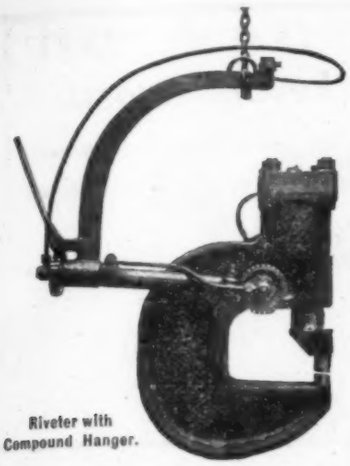

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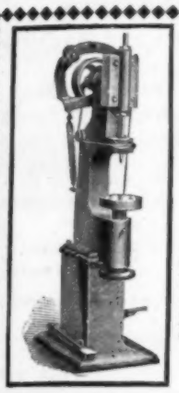

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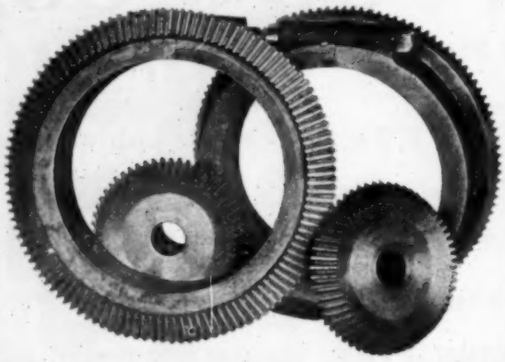

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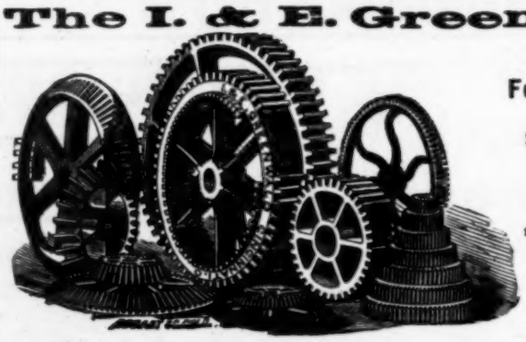

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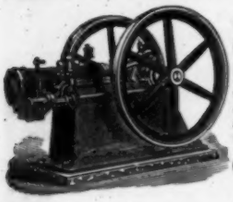

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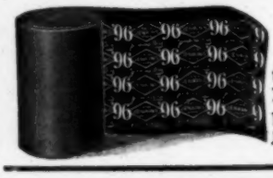

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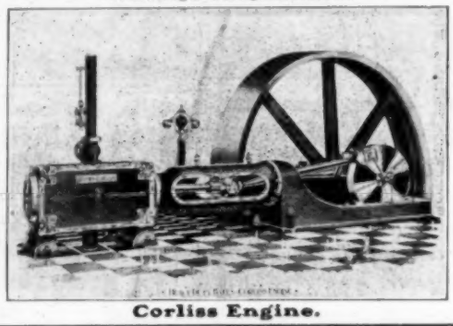

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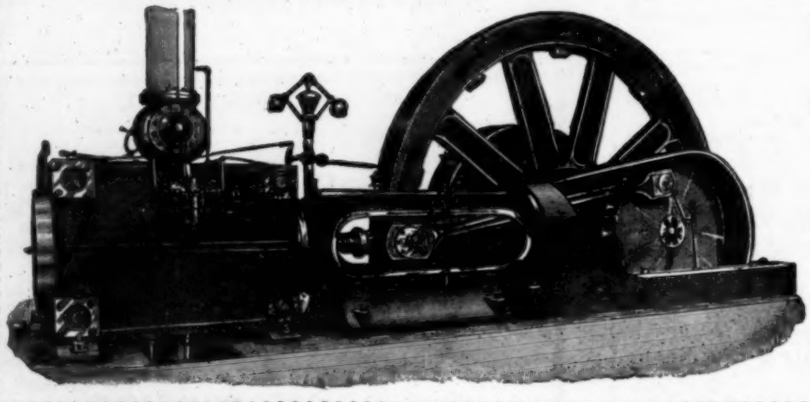

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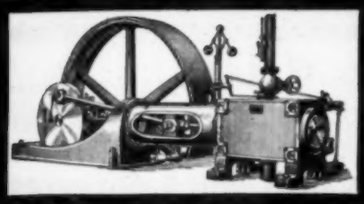

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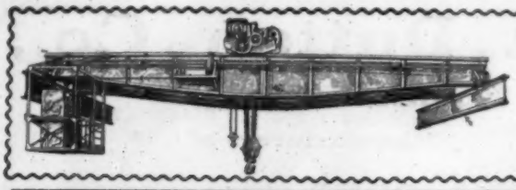

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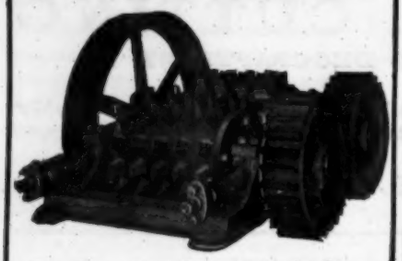

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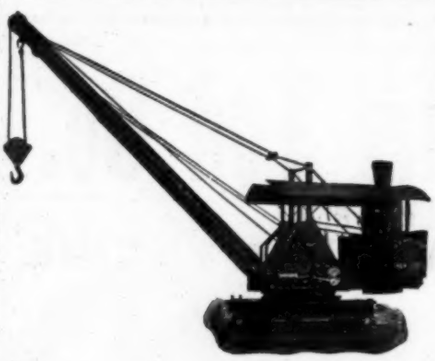

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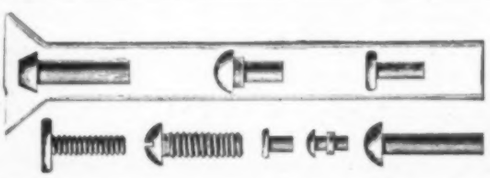

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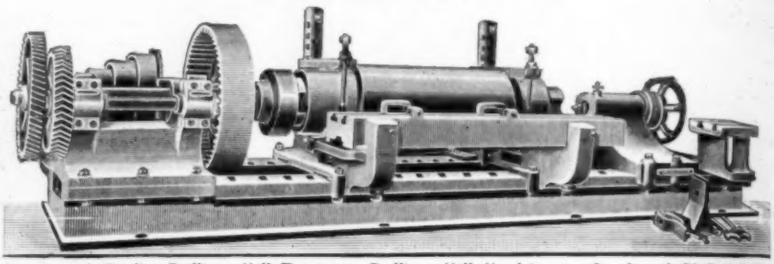

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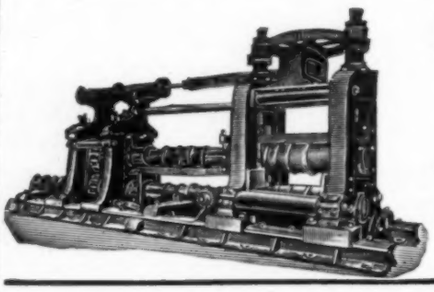

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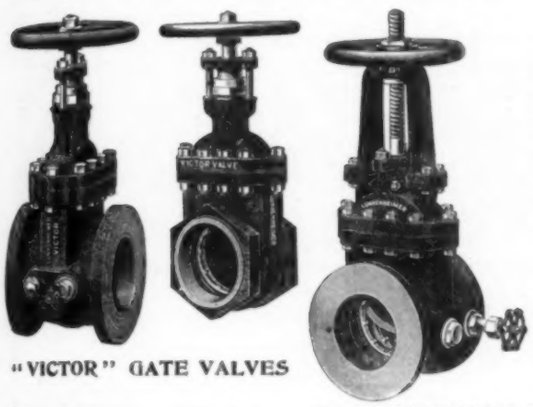

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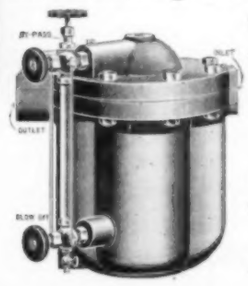

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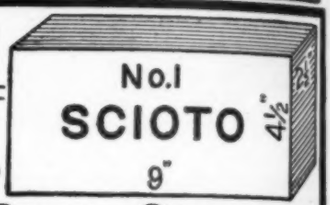


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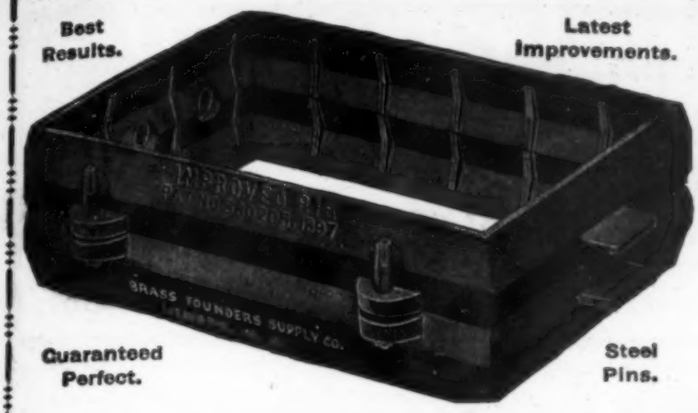


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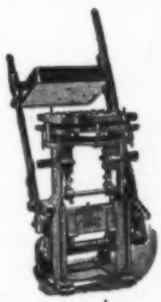

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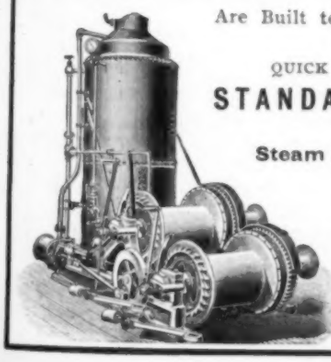

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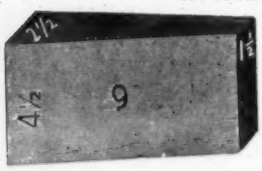


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**CLEVELAND OHIO U S A**

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MANUFACTURED BY

**The Clearfield Fire Brick Co., Limited,**

Office and Works at **CLEARFIELD PA.**

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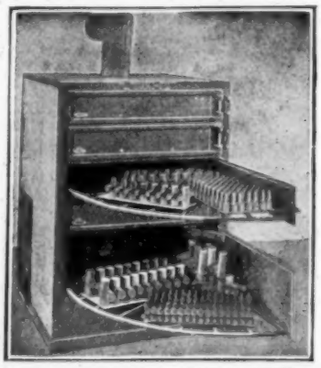
**Jos. Soisson Fire Brick Co.,** *Main Office, CONNELLSVILLE, PA.*

*Manufacturers of High Grade Fire and Silica Brick for all Purposes. COKE OVEN BRICK A SPECIALTY.*



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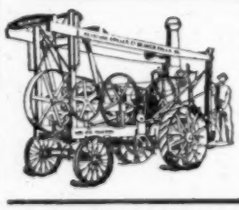

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